"A Comparative analysis of the rubber industries in Liberia and Malaysia: Lessons for industrial policy"

by

THOMAS K DUOKU

A minor dissertation submitted in fulfilment for the Degree

of

Master's of Philosophy

in

Industrial Policy

at the

College of Business and Economics

UNIVERSITY OF JOHANNESBURG

Supervisor: Prof Samatha Ashman

Co-Supervisor: Dr. Ferran Portella-Carbo

2021

DECLARATION

I declare that this minor dissertation/thesis has been composed solely by me for the degree, Master's of Philosophy in Industrial Policy (Department of Economics & Econometrics) submitted at the University of Johannesburg is my own original work. Except where explicitly stated otherwise in the text, and that this work has not been submitted or published elsewhere for any other degree or professional qualification except as specified above.

Furthermore, all sources used have been recognized within the text and are cited in the Bibliography.

_____

THOMAS K. DUOKU

DEDICATION

This research is dedicated to God and to my lovely wife, Mrs Olivia S.B. Duoku, whose commitment; support and prayers have tremendously helped me to achieve this noble goal. God did not make a mistake in sending you into my life to redeem and rescue my future. Thank you, my love. My love for you is endless and can never be quantified or measured; only God has your reward. To my parents, especially my mother and father, Eyea Velegai Lorpu Duoku and Kezelebah Duoku (deceased), you are all remembered, especially for all the sacrifices made during my kindergarten years when it was difficult for you due to the lack of funding. Thank God for Jesus and my mother.

ACKNOWLEDGEMENTS

God first and man second, I am very happy to extend my gratitude and appreciation to my supervisors, Prof. Samantha Ashman and Dr Ferran Portella-Carbo for their guidance, encouragement and advice throughout my time with them as a student. I am extremely blessed to have supervisors who care so much and who responded to my queries promptly whenever I needed their assistance. I must also thank all the professors who are teaching the UJ-IDEP MPhil Industrial Policy at the University of Johannesburg, South Africa for their numerous contributions made towards my career development.

I am very glad to express my gratitude to my wife, Mrs Olivia S.B. Duoku for her unwavering support and encouragement and her firm commitment in the midst of many challenges, temptations and difficulties during the days of my educational sojourn. Special recognition goes to my mother-in-law, Mot. Edith Richward Reeves Gumo for her continuous support, prayers and sacrifices day and night. She is a mother; May God richly bless her hands. In these difficult times and years, to paraphrase, I needed their extra companionship more than water and fire. This companionship generated in me the light of good hope and strength to survive the hours of exacting work with courage and determination.

I also would like to recognize Atty, Prof. Lavela B. Kortimai Sr., and Prof. Geegbae A. Geegbae, Vice President for Institutional Development, University of Liberia, for their guidance and help in accomplishing this dissertation. Also not forgetting my brother, Mr Mulbah D. Duoku, who has always played a fatherly role whenever I have called upon him.

Finally, I want to express my profound appreciation to the United Nations Institute for Development Economics and Planning (UNIDEP) for providing me this opportunity through the provision of a scholarship, which has allowed me to undertake this study. Thank you IDEP, this accomplishment would not have been possible without you.

Abstract

Liberia, with the world's largest contiguous rubber plantations and multinational rubber companies, needs to prioritise the development of a rubber manufacturing plan while moving up the value-added chain. The country needs a structural transformation from low productivity agriculture to high output manufacturing. Manufacturing has the potential to stimulate other sectors of the economy and contribute to export-led industrialization, increase foreign exchange earnings through revenue realization, improve living standards, and increase income distribution. This dissertation thus puts forward a rubber manufacturing, processing plan that has the potential of linking other segments of the economy to it. This would not only contribute to government revenues, but reduce poverty and breach the vicious circle of economic growth without development. Through a comparative case study with Malaysia, using a qualitative research method, this study aims to investigate why Liberia, with the world's largest contiguous rubber plantations, has failed to develop her rubber industry, whereas Malaysia has succeeded.

Drawing on other research and the literature on the industrial rubber sector, it is evident from the research findings that Liberia's rubber industry has failed to develop and become incorporated into the international industrial global value chain, which makes plastics, tyres, gloves, etc., because both past and present Liberian governments and the multinational rubber companies have failed to incorporate universal rubber production into the country, through the addition of value chains.

Research findings reveal that, for Liberia to avoid the vicious circle of growth without development, the government must play a pivotal role through industrial policies, using rubber manufacturing to transform the industrial sector by means of complex value-added industries, just as Malaysia did to achieve industrialization. This would entail the provision of finance, sound macroeconomic policy tools, and the creation of an Act, which would be a powerful instrument to expand private enterprise, especially small-scale farmers, despite their low entrepreneurial skills. Furthermore, a reform cluster approach to policy implementation and political stability would be more effective than the current models of operation, as this would address coordination problems.

Keywords: Rubber industry; Liberia; Resource-based industrialization; Malaysia rubber manufacturing.

ABBREVIATIONS

AFDB	African Development Bank
ASYCUDA	Automated System for Customs Data
BMC	Bong Mine Company
CBL	Central Bank of Liberia
ECOWAS	Economic Community of West African States
EOI	Export-oriented Industrialization
EPZ	Export Processing Zone
FAO	Food Agriculture Organization
FAOSTAT	Food Agriculture Organization Statistics
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ILO	International Labour Organizations
IMF	International Monetary Fund
IMP	Industrial Master Plan
ISI	Input Substitution Industrialization
ITC	International Trade Center
KG	Kilogram
LAC	Liberia Agricultural Company
LAMCO	Liberia American Swedish Company
LD	Liberian Dollars
MOA	Ministry of Agricultural
MIDA	Malaysian Industrial Development Authority
MNC	Multinational Company
MPIC	Ministry of Plantation Industries and Commodities
MSME	Micro Small Medium and Enterprises
MTI	Malaysia Timber Industry
NEP	New Economic Policy
NES	National Export Strategy
NIE	New Industries Economy

PPP	Public-Private Partnership
PRS	Poverty Reduction Strategy
R&D	Research and Development
RM	Malaysian Ringgit
SEZs	Special Economic Zones
SLC	Salala Rubber Corporation
SMR	Standard Malaysia Rubber
SOE	State-own Enterprise
SRC	Sinoe Rubber Corporation
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNMIL	United Nations Mission in Liberia
US	United States

TABLE OF CONTENTS:

LIST OF FIGURES:

Chapter IV

Chapter 1

1. Introduction

Rubber is Liberia's major export cash crop, and is derived from tropical tree forests of the rubber tree *Hevea brasiliensis*. This is a growing crop, principally cultivated to obtain latex, a milky liquid that serves as a basis for the manufacturing of numerous rubber products. Despite Liberia's long history of growing rubber plantations, to date the country has failed to manufacture a single pair of rubber sandals, inner-tubes, slappers, tyres, dishes, etc.

Liberia started planting rubber trees more than 127 years ago during the tenure of President Hilary R.W. Johnson in 1890. It was the concession agreement between Firestone and the government of Liberia in 1926 signed by President Charles D.B. King that exposed Liberian rubber production to world markets.

In the 1920s, access by the United States (US) to Liberian rubber was restricted because of the European colonial powers that had monopolistic access to it. Considering rubber as a vital resource because of its usages, the then US Secretary of Commerce, Herbert Hoover, began working with industrialists to find a source of rubber that could be controlled by US interests. The US Division of Commerce subsidized a worldwide search for a region conducive to rubber production, and in 1923 sent Harvey Samuel Firestone, a rubber entrepreneur, to Liberia to survey the soil. Following the assessment, in 1926 the Liberian government granted Firestone one million acres of land at six cents per acre, in a 99-year lease agreement. That plantation is presently the largest in Liberia, and the world's largest contiguous rubber plantation. Firestone is a subsidiary company of Bridgestone Americas, Inc. with headquarters in Nashville, Tennessee (Dunn, Beyan, & Burrowes, 2000).

In 1946, the annual rubber production of this one plantation was 40,000 tonnes. The number of commercial farms in Liberia grew from 500 in 1941 to over 5,000 in 1960. By the 1980s, agricultural outputs totalled US$98.7 million with rubber accounting for 63%. Since then, there has been no increase in production, with Liberia still producing less than 1% of rubber internationally. Most of the different types of rubber produced in Liberia are exported raw, without any secondary additions of value (Terneusen, 2017).

Rubber production in Liberia experienced an interruption in the early 1950s, until seven additional concessions were granted towards the end of that decade. These included the Cocopa Rubber Plantation (a multinational company) that signed a 40-year agreement in 1949; the Sinoe Rubber Corporation that concluded its concession agreement for 80 years in 1953; the Guthrie Rubber Plantation that was established in 1954 and commenced production in 1963, after obtaining a tax exemption up to 1973, and paying 25% on profit as corporate tax for ten years, after which the normal corporate tax applied; the Liberia Agriculture Corporation (LAC), a multinational company that signed a 70-year lease agreement on 125,000 hectares in 1959, which is the second largest plantation in Liberia, with a processing plant installed in 1968 for the production of raw rubber latex for export. LAC is owned by "*Société Financière des Caoutchoucs-SOCFIN"* and is a subsidiary of the Bolloré Group. The company was founded in 1909, with its headquarters in Luxembourg, and is involved in the plantation and exploitation of rubber and palm trees in Africa and Asia. They have approximately 187,000 hectares of tropical plantations of oil palm trees and rubber trees in Europe, Sierra Leone, Liberia, Ivory Coast, Ghana, Nigeria, etc., (Verheye, 2010).

Other concessions include the Salala Rubber Corporation established in 1959, with 40,000 hectares, and the Cavalla Rubber Plantation, which initially was part of the Firestone concession and was subsequently passed on to the Liberian government-under President Samuel Doe in 1981, with a concession agreement signed in 1983 with the Belgian Company SIPEF. Under this agreement, the government maintains a 50% share in the company. Despite the establishment of all these multinational corporations (MNCs), especially Firestone and LAC with their high economic strength, there has not been any attempt to erect a processing plant for manufacturing purposes in Liberia. Instead, all the rubber is exported in its raw form (Vérité, Assessment, 2015).

Indeed, the Liberian economy is still primarily based on agriculture, which represents 38.8% of the country's GDP. This sector of the economy employs up to 70% of the labour force, while just over 20% is employed in services, and less than 10% in industry (Moore, 2017).

Most of the population depends on some form of subsistence agriculture for sustainability. Terneusen (2017) revealed that the major commodity exports that

contribute to the economy through revenue accumulation are rubber, timber, iron ore, diamonds, cocoa and coffee, which accounted for 34% of the agricultural GDP in 2008 (Central Bank of Liberia (CBL) 2009). In 2006, export revenues from rubber increased from US$150 million (95% of total export revenue) to US$206 million, which was equivalent to 86% of total export earnings in 2008 (Terneusen, 2017).

Thus, Liberia's industrial sector is underdeveloped and generates exports only with a few agricultural commodities. Development of the manufacturing sector would accelerate the growth of the Liberian economy for the following reasons, amongst others: manufacturing would drive the primary and tertiary sectors, including technological upgrading, it would increase employment and thereby enhance private consumption and relax balance of payments constraints (Su & Yao, 2017).

Rubber manufacturing could be the means of industrialization through the initial establishment of one rubber processing plant that can bridge the crucial gap. This industry has strong potential, particularly to promote export-led industrialization, generate public revenue through taxes, earn foreign exchange, and generate employment, given its labour-intensive production process, as highlighted by many scholars (e.g. Verheye, 2010). Liberia needs structural transformation and resource-based manufacturing could be the means.

The historical experience of many countries indicates that processing crucial commodities can indeed be the means towards increasing industrialization. In this study, I pay special attention to a comparison with the case of Malaysia, because the country has a similar history to that of Liberia, in that the economy was originally based predominantly on their agricultural sector. During the early 1960s and 70s however, the Liberian economy depended on the extractive sector that led to economic growth without development, pretty much as in Malaysia (Edward, Bradley & Gaynor, 2013).

In the 1960s and 70s, Liberia became the world's third largest iron ore producer and exporter, and the largest in Africa. This occurred through four giant companies: the National Iron-Ore Company (NIOC), established for the exploitation of the Mano River iron-ore deposits, and the Liberian American-Swedish Minerals Company, a joint venture which became operational in 1960/1961. Furthermore, the LAMCO JV

Company exploited the extremely rich Nimba mountain iron-ore deposits, which was the largest Swedish investment made abroad after 1945. The German Bong Mine Company (BMC) opened in 1965 and was the largest German investment in Sub-Sahara Africa. From 1957 to 1999, Liberia's economy was stimulated by iron-ore exports, with income over that period increasing from US$20 million to US$106 million. Government revenues rose from US$25 million to US$48 million in 1959 to 1966, through earnings from iron-ore concessions and customs duties. However, no domestic linkages were developed from this mining. Consequently, the drop in demand due to climate change coupled with the volatility of iron-ore and natural rubber prices (the chief export crop in Liberia) gradually fell from 12,196 tons in 2014 to 235 tons in 2017. This resulted in foreign exchange losses and a deteriorating current account balance, leading to declining reserves and a reduction in government revenues. Bearing this history in mind, the setting up of a processing and manufacturing plan would be the best option to avoid the country repeating its history of growth without development (Moore, 2017).

Liberia is a country that should not be poor, but it certainly is. Liberia's per capita income in the 1970s was equal to that of Japan, but now the country is ranked by the World Bank as one of the poorest countries in the world (Adebusuyi, 2004) .

A decline in the demand and world prices of iron ore and natural rubber, Liberia's chief exports, has resulted in serious economic instability that has imposed financial hardship on the country from the 1960s to date. The volatility and falling prices of rubber on the global market led Firestone to lay off 432 workers, which was another blow to the country's battered economy. Liberia cannot rely on the production of natural rubber alone, the price and demand for which remain volatile. Rather, it should diversify into the manufacturing of rubber goods, which offer higher and more stable prices and would generate greater income elasticity. The price volatility consequences have increased government deficits resulting in escalating national debt, accelerating capital flight, and a preference for short-term investment and thus a fall in the country's exports earnings and GDP (Adebusuyi, 2004).

1.2 Problem statement

Liberia is an exporter of raw rubber without secondary processing activities to support value addition, which has had negative consequences for the country in moving up the global value chain. Since the inception of rubber production in Liberia, the government and MNCs involved in the rubber industry have not been able to formalize marketing strategies that focus on value-added by transforming the raw rubber into consumable products. Consequently, the decrease in demand for the commodity, and price instability globally, has resulted in incremental losses in the MNCs profit intake, thus affecting government revenues and the entire economy.

The erection of a manufacturing rubber processing plant would enable the country to move up the global value chain and allow the MNCs to achieve their desired goals by creating more jobs, thus diminishing poverty and increasing income levels and government revenues. Therefore, the research objectives of this study are to investigate why Liberia, with the world's largest contiguous rubber plantation, has failed to develop her rubber industry by building manufacturing plants that will add value to the raw product, and to develop a marketing strategy to improve government revenues and the living standards of the destitute Liberian people.

1.3 Research questions

To realize the objective(s) of this research, the following research questions have been posed: Why has Liberia failed to develop secondary industrial rubber plans? And, how best to identify strategies to improve government revenue and ameliorate the poor living standards of the Liberian people?

1.4 Objective(s)

The objectives of this research are to explain why Malaysia has succeeded and Liberia has failed to develop her rubber industry by transforming the raw latex and rubber wood products into finished consumables that would serve as a source of economic growth and lead to job creation and a decrease in poverty. To achieve these objectives, the research points to industrial policy as a key instrument to support the growth of the rubber industry in Liberia.

1.5 Organization of the study

This research is structured in five related chapters. Chapter one comprises the introduction, problem statement, research questions, and the objectives of the study. Chapter two focuses on the literature review, the theory on the importance of manufacture, and the importance of diversification in manufacturing. The methodology is presented in Chapter three. Chapter four contains an analysis of both the Liberian rubber industry and Malaysian the industrial sector, with an overview of the rubber industry in Liberia and its moving up the global value chain in production and trade; an analysis of the Malaysian rubber industry and an overview of its industrial and governmental policies to support the development of their rubber industry; and a comparison of the Malaysian and Liberian industrial rubber sectors. Chapter five presents a summary, policy implications and the conclusions.

Chapter II: Literature Review

2.1 Introduction

This section aims to emphasize the importance of why Liberia needs a rubber industry within its resource-based industries and identifies where new contributions can best be made. The rest of the chapter assesses the different methodologies used by Malaysia, and identifies the policy instruments that were used to elevate Malaysia's rubber industry from a low-value industry to a world-class manufacturing industry.

According to Fessehaie and Rustomjee (2018), resource-based industries include the manufacturing of products such as rubber, palm oil, petroleum, diamonds, etc. Resource-based products involve clusters that depend on local factors such as ownership and technology, that optimise backward and forward linkages (Fessehaie and Rustomjee, 2018).

2.1.1 Theory on the importance of manufacturing

The Su and Yao (2017) research shows that economic growth is not characterized by a homogeneous increase in the scale of production, but by structural change. A strong and diversified manufacturing sector is key to economic growth.

Their research emphasises that manufacturing plays a crucial role in every development process as the main source of productivity growth. Manufacturing serves as the major channel for the diffusion of new technologies to various parts of the economy. In addition, as a critical source of demand for other sectors in the economy, manufacturing firms are important consumers of other industrial products such as financial, transport and communication services, raw materials and agricultural products. As the share of manufacturing in an economy increases, capital income increases concomitantly, which results in a decrease in expenditure on agricultural products in total household expenditure. This indicates that manufacturing is characterized by a higher income elasticity of demand (Su, D. & Yao, 2017).

According to Tyson (2017), the Liberian population has increased from 2.5 million to 4.5 million, and the demand for manufacturing products is increasing, along with the

need to provide further employment opportunities (Tyson, 2017). In short, Liberia can promote economic growth through the establishment of manufacturing processing plants in the rubber sector amongst other resource-based industries, as in the process of development, manufacturing is capable of linking other sectors of the economy through forward and backward linkages by contributing to productivity enhancements, domestic investment, employment and economic growth (Eaton & Kortum, 2001).

Fessehaie and Rustomjee (2018) demonstrate that the success or failure of resource-based industrialization relies on a set of factors that include capital market imperfections, human capital, and weak knowledge systems. Their analysis further emphasizes the important role of government and the development of resource-based industries. The success of a resource-based industrialization approach is sector-specific, and requires the development of tailored policy instruments (Fessehaire & Rustomjee, 2018).

Along these lines, Kaldor's (1957, 1961) "growth laws emphasise that manufacturing is an engine" of economic growth (Thirlwall, 1983). The first law, stating that manufacturing is the engine of economic growth, indicates that there exists a strong positive relationship between the growth of GDP and manufacturing output growth. Growth of the manufacturing sector leads to growth of GDP (but not because of the manufacturing output), which in turn leads to growing household expenditure. Manufacturing stimulates growth inside other parts of the manufacturing sector as well as in the economy (Thirlwall, 1983).

The second law, also known as Verdoorn's law, states a strong positive relationship between labour productivity growth in manufacturing and the growth of manufacturing output. This law emphasizes that manufacturing output growth (demand) impacts positively on industrial productivity growth through static and dynamic economies of scale i.e. the faster the rate of manufacturing output, the faster the rate of growth of labour productivity in manufacturing.

The third law states that there is a positive relationship between the growth of labour productivity outside of manufacturing and the growth of manufacturing output. In the economy as a whole, there is a negative relationship between labour productivity

growth and the rate of employment growth in non-manufacturing sectors, because most activities outside the manufacturing sector are subject to diminishing returns (particularly land-based activities such as agriculture and many other service activities).

Kaldor's growth model (late 1950s early 1960s), established a link between manufacturing output growth and export growth. A country grows faster if it has an export structure geared towards a demand for high value-added goods, which tend to have high income elasticity of demand, as is the case with many manufactured goods. In addition, higher exports relax balance of payment-constraints (Thirlwall, 2014).

Kaldor (1957, 1961) also stressed the importance of returns to scale, as the manufacturing sector has a high potential for cumulative productivity increase. Tregenna (2009) asserted that manufacturing remains more important in terms of 'growth-pulling' than any other sector, and that growth in manufacturing has a greater demand stimulatory effect on the economy as a whole than on other sectors.

Therefore, it is not surprising that the performance of the industrial sector correlates with the performance of the economy. It is a key sector in explaining the sustainability of different patterns in productivity and employment growth. Furthermore, slow industrial growth might lead to 'low road' infrastructure development, which in turn has other trade-offs in terms of employment growth, as 'low road' development results in expanding employment opportunities and overall productivity growth (Pieper, 2000).

2.1.2 Import Substitution Industrialization Policies

Worldwide, the infant industry arguments have been the most influential for the implementation of import substitution policies, but in Liberia this is not the case. The arguments refer to the scale of economics and dynamic learning effects that allow industries to compete with other established producers. Benefitting from economies of scale requires a learning period to master production techniques and build up capacity. For infant industries to expand and gain market share, a policy of protection from import competition is necessary for a limited period, until the cost of

production falls to an internationally competitive level. Once this occurs, protection in the form of tariffs or quotas on imports, or direct subsidies to domestic producers can be halted. The economy in general will gain from the temporary protection due to the establishment of new and dynamic industrial sectors. The initial stages of import substitution are not difficult because they involve the production of non-durable goods that require types of production well suited to the existing conditions in countries without industrial experience, such as Liberia. Example: the production of shoes and foodstuffs is usually unskilled and labour-intensive, the technology unsophisticated, and the scale of output low (Greenaway & Milner, 1993).

According to Lang (1992: 447), Helleiner (1990,1992), and Alavi, R (2006), import substitution and export promotion are sequential strategies rather than alternatives, and are more compatible than separate strategies. They further claim that import substitution is not only needed for export ability, but also for allowing local industry to produce the volumes necessary for exportation in the global market.

Morris, Kaplinsky, and Kaplan (2015), showed that import substitution and export-oriented industrialization are key drivers of the industrialization that is imperative to all economies, including commodity-exporting economies, but that they require effective strategies to promote the industrial sectors (Morris et al., 2015).

Pangestu (2002) showed that the following three sets of policy tools are paramount in the implementation of an industrial policy:

1. Outward market interventions which include import tariffs, quota licensing and local content policy, and export promotion such as export subsidies, export processing zones, and subsidized credit.
2. Product-market intervention aimed at stimulating competition in the domestic market, competition policy and law.
3. Pangestu (2002) demonstrated that factor-market intervention in foreign direct investment comprises performance requirement and restriction in the capital and finance market, the labour-market, and equity objectives. Factor-market intervention through foreign direct investment (FDI) brings about the transfer of modern technology that enhances the production capacity of domestic smallholding rubber farmers by rising profits (Pangestu, 2002).

2.2 The Importance of Diversification in Manufacturing

Diversification in manufacturing is the process of reducing output volatility by providing insurance against sector-specific shocks (Papageorgiou & Spatafora, 2012).

Countries like Liberia with small domestic market outputs and exports will typically find it hard to diversify. Outputs diversification is a prerequisite for exporting as it makes countries focus not only on the determinants of outputs, but also on exports that generate foreign exchange, help to finance imports, and allows for economies of scale. Oeking (2016) showed that exporting firms are more efficient than those selling in domestic markets as they can generate positive technology spill-over to the rest of the economy. The process of diversification leads to increased or less volatile investment, which in turn fosters growth. Another key aspect of diversification is productivity improvement (IMF 2014b). Productivity growth is the main driver of development in the long run. Diversification into a new sector can lead to sectorial productivity growth and labour reallocation, e.g. high agricultural productivity growth can free labour to be shifted to other sectors in the economy, such as manufacturing (Oeking et al., 2016).

Rubber potentially offers such benefits of diversification, as it is normally believed that latex is the obvious commercial commodity for which rubber trees are planted. However, there is also great economic value to be had from the tree itself, which becomes a fundamental product for manufacturing after its latex-producing life is over. Rubber wood is an important source of forest timber for the timber industry, and for the making of wood products. However, the common practice in Liberia is to mainly use the wood as charcoal for domestic cooking purposes (Freeman, 2011).

The research of Kollert and Zana (1994) demonstrated that rubberwood can be used, when properly treated, as a substitute for tropical timber, as its colour and low shrinkage rate make it a suitable material for industrial furniture. It is also resistant to splitting by nailing, making it ideal for construction, and its strength makes it suitable for making good-looking furniture. It can be stained to shades of traditional forest timbers, including teak, rosewood, mahogany, cherry, etc. From a monetary point of view, the production cost per cubic meter of rubberwood is only about 30% of the

production cost of certain forest species. This shows that both the latex and the wood have economic value, and are important in contributing to economic growth.

Umar, Giroh, Agbonkpolor, & Mesike (2011) inserted that natural rubber latex products such as gloves offer tremendous opportunities in Malaysia, Japan, Thailand, the Philippines, and China, as all these countries have set up factories to produce them. Natural rubber provides the opportunity for the production of industrial goods (hoses, conveyor belts, rubberized fabrics, gaskets, seals etc.), engineering products (for resilient load bearing and shock or vibration absorption), and latex products (gloves, catheters, prophylactics, adhesives etc.) (Umar et al., 2011).

Freeman (2001) demonstrated that the rising environmental consciousness amongst consumers would result in increasing demand for rubberwood which, in the future would eventually outstrip its supply on the international market, resulting in a price increase on world markets. This would give Liberia's current socioeconomic realities a facelift, as joining the rubberwood industry would present an opportunity beyond the mere marketing tool of displaying the "Made in Liberia" label, as it has the potential to be a significant part of the mechanism for the reduction of poverty in the country. Establishing a robust rubberwood industry would engender demand for complementary products, thereby fostering investment in more downstream manufacturing activities, and thus expanding the country's industrial base in the long run. For example, an established rubberwood furniture sub-sector would undoubtedly create the demand for the manufacture of products such as foam for cushions, pillows, mattresses, lounge suites, etc.) as well as adhesives used in the furniture industry (Freeman, 2011).

Chapter III: Methodology

3.1 Introduction

This research involved the use of a qualitative research method and a case study. Case studies are analytically described as a multipurpose form of inquiry mostly suitable for the complete, holistic, and in-depth investigation of a complex situation in a context where the boundaries between the contexts and issues are unclear, and where the problem contains many variables (Harrison et al., 2017).

3.1.1 Methodology

A comparative case study was done on Malaysia to learn about those aspects that have enabled Malaysia to elevate her rubber industries from insignificant sectors to sophisticated industries. Malaysian development represents the development of a downstream sector from a local raw rubber resource in the country's earlier stages of development. Today, the rubber manufacturing industry in Malaysia produces 740 thousand metric tons each year, and has export revenues of over RM14 billion (US$3.5 billion) annually. Malaysia has become a rubber manufacturing and processing hub for other surrounding countries in Asia and globally. This success was preceded by a structural transformation from low productivity agriculture to an industrial economy. Presently, Malaysia is considered a middle- to upper-income country by global standards. The Malaysian government built its top-notch rubber industries through a well-crafted and sustained support system by means of framework policies as well as incentive provisions for value-added exports. These policies have resulted in Malaysia being the world's largest producer of rubberwood, with the most diversified rubberwood industries in the world (Harrison et al., 2017).

Other factors that make Malaysia a relevantly comparable to Liberia are that Malayans were impoverished, but certain racial groups in their midst (mainly Indians and Chinese) were becoming increasingly affluent due to their connection to tin and rubber exports. This created unmanageable social tensions in the newly-born Federation, resulting in the 1969 riots. The Malaysian government realized after the riots that employment opportunities for Malayans were limited under the import-substitution policies in place at the time, which had resulted in high poverty rates

since independence. The government therefore formulated New Economic Policies (NEP), which aimed at fostering national unity and nation-building through the eradication of poverty and by stimulating economic growth to eliminate the identification of ethnicity and economic functions. After the civil war from 1989 to 2003, Liberia was faced with a similar problem of massive unemployment and high poverty rates. The eradication of poverty and decreasing of unemployment was one of the major objectives of the Ellen Johnson Sirleaf government, which led to the formulation of the Poverty Reduction Strategy (PRS) in 2008.

Factors to be compared in Malaysia and Liberia include government support for the development of the rubber industry; legal frameworks; rubber goods manufacturing; industrial master plans; agricultural development strategies; and export-oriented industrialization. The choice of these factors was driven by the fact that they are the pivotal instruments that have made industrialization successful not only in Malaysia, but also in other industrialized countries of the world.

The data for this study came from the following sources: Food and Agriculture Organizations (FAOs), the World Bank (WB), the United Nations Development Program (UNDP), the African Development Bank (AFDB), the Liberian Ministry of Agricultural (MOA), and the Central Bank of Liberia (CBL) publications such as their annual reports and statements of accounts, as well as the academic literature cited in the bibliography of this thesis.

Chapter IV:

4.1 Introduction

This chapter concentrates on an analysis of both the Liberian and Malaysian industrial rubber sectors. The Liberian industrial sector analysis includes an overview of the rubber industries in Liberia (global market industrial analysis and opportunities); the need for industrial policy; major problems facing the rubber industry; the importance of export and import industrialization strategies; government policies that support trade in Liberia; and policy regime. Analysis of the Malaysia rubber industry includes an overview of industrial policy (industrial master plans); agricultural development strategies; the new economic policy (NEP), and government policies that support the development of the rubber industry.

4.1.1 Overview of the rubber industries in Liberia: Global Industrial Analysis and Opportunities

In 2005, the Labour Minster of Liberia, Samuel Kofi Woods, headed a delegation to Washington DC, to renegotiate a portion of the Firestone concession agreement with concentration on two major areas: the agreement which reflected the obligation of management and government, and the collective bargaining agreement, which reflected the obligations and commitment of workers and management. The major concern of Liberians over the setting up of a manufacturing plant was not discussed as anticipated. After the original concession agreement made in 1926, Firestone began recruiting workers by employing forced labour strategies through negotiation with local government officials, district commissioners, and local chiefs, who received a monthly token for each person they provided as a labourer for the company, thus forcing many labourers to work on the Firestone plantations. However, since the commencement of rubber trading in Liberia, the country has not benefited much, as there is no value-added to their raw rubber (Johnson, 2010).

One of the apparent reasons for Liberia's rubber development failure is the lack of appropriate marketing strategies both by Firestone and the Liberian Agriculture Company (LAC). This resulted from governments' reluctance to collaborate with the two multinational companies in designing suitable strategies that would lead to the erection of manufacturing, processing plants to transform the raw rubber into finished consumable products. Firestone is a multinational company under central

management that controls the rubber market in Liberia with its large-scale production of crops by a uniform system. Firestone and LAC have the highest economic capacity in the industrial rubber sector in Liberia and could easily devise a manufacturing processing plan. However, due to lack of public-private partnerships, they only cultivate rubber on a one million hectare plantation with 45-divisions (each 600-800 hectares) and the 31-square-mile Cavalla plantation (LAC), which is divided into six divisions, for export. The Firestone plantation occupies an area equal to that of the island of Singapore (Church, 1969).

Furthermore, currently there are no approved policy guidelines for public-private partnerships (PPPs) which are managed as government concessions, creating potential fiscal risk (Lesley *et al.*, 2016). Consequently, weak governance, weak institutions and political influence are major bottlenecks in Liberia's industrial development. As a result, even the state-owned enterprises (SOEs), which could serve as major contributors to economic growth and manufacturing, have been weak. This is evidenced by the Kowo (2012) research on SOEs, which showed that Liberian SOEs have not been functional in contributing to the country's economic development because most of the directors and board members (appointed by the president as stipulated by law), lack the expertise and technical competence to make SOEs beneficial to the local economy (Kowo, 2012).

4.1.2 The need for Industrial Policy

The Liberian experience shows that a rubber industry is unlikely to develop there due to the prevailing market forces and multinational corporation strategies. There is a need for industrial policy creation by government to transform the economic structure and offer improved prospects for economic growth (Pack & Saggi, 2006).

In subsequent chapters, we will see that Malaysia applied aggressive industrial policies to develop their rubber industry. Indeed, most successful industrialization experiences have relied on active industrial policies (Amsden, 2001).

4.1.3 Major Problems facing the rubber industry in Liberia

The Liberian economic records of the 1960s and 70s have been characterized as "growth without development" and mainly driven by extractive industries with no linkage to the economy as a whole. Industrial transformation in Liberia has been difficult due to the prolonged civil wars from 1957 to 1961 and 1989 to 2003, which paralyzed the economy and the country's major institutions and infrastructures.

The Liberian Industrial Policy (2011) demonstrates that other constraints facing the rubber sectors' development are high tariffs and too much bureaucracy surrounding trade policies. The ability of Liberia to absorb FDI is low, as the investment climate is poor due to the political instability coupled with bureaucratic obstacles to investment and trade. Major problems are weak institutions, lack of transparency, impediments to the free flow of information and lack of specialists. Infrastructure development and services are expensive, making it difficult to attract investment. Moreover, although bank reforms are progressing, the costs of financing are still a problem because the available financing is not suited to industrial development. Other problem areas include lack of support in specific areas i.e. the provision of fiscal incentives to industries; Special Economic Zones (SEZs) creation of agglomerate industries for crowding in investments that maximize potential between the activities of foreign industries; and domestic industry protection. All of these contribute to the high cost of entry, production, and doing business in Liberia, thereby discouraging sound economic establishment and reducing competitiveness (Ministry of Commerce Liberia Industrial Policy, 2011)

Poor infrastructure: transportation, telecommunications, roads, energy, etc. are crucial to the rubber manufacturing sector, and the poor infrastructure of these in Liberia is due to the country's long civil conflict. Inadequate infrastructure halts modern commerce since this is characterized by production specialization and exchange across markets. Many capital goods for rubber manufacturing would have to be imported to supply the good infrastructure critical for assuring that exports and imports are possible at a reasonable cost. The current deplorable infrastructure needs to be developed, as it is the backbone of paved roads, power transmission lines, and fibre optic cables. Inadequate infrastructure has led to delays in delivery of goods and services, at a high cost to the service provider. Liberia is not currently

connected to the SAT3 submarine cable that skirts the West African coastline, however, there is an assurance to connect the country to the new West Africa cable project (Foster & Pushak, 2010).

Small domestic market: sixty-four per cent of the Liberian population of 4.5 million live below the poverty line. The domestic market size coupled with the low purchasing power of the citizens, limits the growth of industry. The small size of the domestic market suggests that most of the manufactured rubber products should be exported.

Information and coordination challenges: data on industry and government activities has not been effectively communicated to the general populace, thus leaving the population uninformed regarding the policies and reforms available to them. Poor information and lack of transparency discourages investment and reduces trust between government and the private sector. This results in poor coordination and proper planning between the government and the private sector in identifying economic activities that could benefit the destitute people of Liberia. Governments cannot attract investment in isolation (Ministry of Commerce Liberia Industrial Policy, 2011).

Skilled labour force: UNESCO (2010) showed that most of the labour force in Liberia is illiterate and unskilled, particularly those in the rural areas. According to the report, the adult literacy rate in Liberia is estimated to be 60.8%, while the literacy rate of the youth aged between15-24 is 76.5%. Some jobs in the rubber manufacturing sector that require literate workers include: manufacturing factory services workers, quality control management, training on the cultivation of rubber, and so on. The Maritime Institute that was offering training to Liberians to fill this gap has been closed due to lack of funding from government, as a result of the global economic crisis (Beth, 2009).

Inexperienced farmers: most domestic farm entrepreneurs have limited skills and lack technological knowledge. Becoming a domestic rubber farmer entrepreneur would require managerial skills and up-to-date information, but the Liberian domestic farmers have great difficulty in understanding the adoption of new technologies in farm management. Due to the low level of technical knowledge education, coupled

with poor extension services and the interruption of farming by the 1989 civil war, the farms have suffered from insufficient physical infrastructure management. In addition, during the civil war, many farms were targeted by the militia, causing owners and labourers to flee. Furthermore, smallholding farm owners are usually dominated by their families whose capital accumulation is primarily derived from retained earnings, making the financing of capital investment to improve productivity an enduring challenge. In a poor country like Liberia, family farms typically have much lower levels of income per worker due to ignorance pertaining to managing risk (lack of insurance policies), and their inability to plan for the non-productive rainy season (six months per year). Further difficulties include the tedious process and high cost of getting their goods to the buyers (mostly Firestone and LAC), as well as periodic decreases in demand and price fluctuations of rubber on the world markets. Owing to the lack of international linkages to sell their raw products, Firestone and LAC as the main buyers determine the cost of smallholding farmers' products. This has caused Liberian domestic smallholders to make inefficient decisions and not fully exploit the potential of technology (Byerlee, et al., 2017).

Low Human Capital development: due to the interruption in many Liberians' educational and professional development as a result of the war, the labour force in the rubber industry needs training to make use of the new technologies. The capacity of the rubber industry in terms of human capital remains a major challenge, as most farms are family-owned and managed and do not rely on training their human capital in the innovative technologies that promote growth. They therefore have weak management structures headed by low-skilled family members with no technical experience. This is attributed to the absence of modern technology coupled with the absence of the skilled workforce necessary to support the operations of rubber production (Ministry of Commerce Liberia Industrial Policy, 2011).

Limited Government support: the shortfalls in agricultural funding have restricted many services to farmers, making the technical capacity of the Ministry of Agriculture (MOA) inefficient. Funding is the single biggest factor that influences government's service delivery. The Liberian government's overall budget compromises an economy that is in the rebuilding phase after 14 years of conflict, combined with a poor tax base, which have affected the development of the rubber industry, and especially the smallholding farmers (Moore, 2017).

The legal system: government intervention through its task force removing ex-combatants from the Sinoe Rubber Corporation and Guthrie Rubber, paved the way for restoration of stability, but painted a grim picture of the Liberian rubber sector.

a) The United Nations Mission in Liberia (UNMIL) and the Liberian government began executing plans to demobilize and reintegrate ex-combatants working in the Sinoe Rubber Corporation (SRC). This action was timely and important as it brought relief to the rubber tappers and regularized rubber cultivation activities in the Sinoe Rubber Corporation environment.

b) The Ministry of Agriculture (MOA) and relevant stakeholders should develop a plan to investigate local community dwellers' claims to existing rubber concessions. The MOA, in collaboration with stakeholders and donor partners, should develop a strategy for the long-term transformation of the rubber industry from an extractive industry to a secondary manufacturing sector (Smillie & Brownell, 2007).

4.2 Government policies that support trade in Liberia: government policies put in place to address some of the challenging issues include:

1. The drafting of a Special Economic Zones (SEZ) law. The government intends to work to attract more foreign investors in order to broaden the base of the productive sector. This is expected to encourage the flow of FDI and technology transfers and to enhance the capacity of domestic smallholder rubber farmers to move up the value chain.
2. Provision of more opportunities for the domestic smallholders and the industrial rubber sector, through the government's procurement process.
3. Initiatives to expand trade in the member countries of the Economic Community of West African States (ECOWAS), including global markets, as market size and consumers of rubber products coupled with the purchasing power of the ordinary Liberian, is small. (One of the central goals of ECOWAS is economic integration through trade).
4. Strengthening the institutional framework through the induction of the Automated System for Customs Data (ASYCUDA), and the implementation of a public/private partnership to manage the National Port, thus improving the regulatory environment for the rubber manufacturers, export and import procedures, and the documentation

process, to attract more FDI flow (Ministry of Commerce & Industry Liberia, 2019).

4.2.1 Moving up the global value chain of production and trade in the Liberian rubber industry

The FAO (2011) revealed that Liberia is estimated to have about 600,000 hectares of overgrown rubber farms – most of them between 30 and 60 years old. With the conservatively assessed figure of 100 cubic meters of rubber wood per hectare, mostly of a high quality, this places the country in a good position to become a reliable competitor in the fast-expanding rubberwood industry. Through a coherent investment strategy that targets the export of value-added products, the potential for the emergence of a rubberwood sub-sector as a major foreign exchange earner for the country, can be realized. Establishment of a rubberwood furniture sub-sector would undoubtedly create the demand for the manufacture of products such as foams for cushions, pillows, mattresses, and adhesives, to complement the furniture industry (Freeman, 2011).

Liberia as an exporter of raw rubber in the global market needs to tap into this comparative advantage by using the rubber industry to develop domestic linkages with the manufacturing sector and thereby move up the production value chain.

Gazis and Chaverri (2010) documented that 90% of the world's natural rubber is obtained from the tree *Hevea brasiliensis*. This is the tree that provides the raw material for the rubber industry in Liberia. However, the world rubber markets are dominated by synthetic rubber developed from oil products. Synthetic rubber delivers 60% of the world's rubber consumption, while 40% comes from the *Hevea braziliensis*. The latter yields better quality and is extensively distributed due to its cultivation worldwide (Gazis & Chaverri, 2010).

The strength and the properties in rubberwood are comparable to those of several tropical forest timber species. Liberia could fully utilize both the tree's latex and wood by developing a natural rubber latex factory and a rubberwood industry, which would have spill-over effects in other sectors.

Collection of the raw latex begins with a rubber tapper, who collects the latex and transfers it to a field station where acid is added as a first step in the production of rubber. Later, this is transported for further processing at Firestone or LAC, where processing facilities clean the rubber in several stages. This is followed by heat

treatment and packing into blocks ready for export. Factory-based processing of raw latex takes place only at Firestone and LAC, constraining small-holder farmers to sell their semi-processed rubber only to the two companies (Vérité & Assessment, 2015).

The production of natural rubber and rubberwood provides a source of raw materials for the development of forward linkage activities through the establishment of rubber products' manufacturing industries. This would result in stabilizing the prices and increasing the country's elasticity of income. The Liberian rubber industry needs to develop new knowledge that would lead to innovation and increase its competitiveness. This new knowledge would enhance innovation technology and marketing techniques that have the potential to spur growth, solve existing problems, and develop the domestic rubber industry's capacity to compete in the global market (Thornhill, 2006).

Rodrick (2004) argues that identification of a comparative advantage enables a country to specialize in one specific productive sector. Additionally, in business circles, much emphasis is placed on the role of comparative advantage as a predictor of economic fortune. This thinking is not confined to individual firms alone, but to nations as a whole (Rodrick, 2004).

.

4.2.2 Policy regime

Promoting Economic growth in Liberia

Industrialization must enable Liberia to generate economic opportunities. Restoring economic growth demands structural transformation from low-productivity agriculture to high productivity manufacturing, while expanding employment. Rubber processing and manufacturing plants are capable of creating jobs for large numbers of low-skilled workers. This process is the foundation for reducing widespread poverty and ensuring a more equitable distribution of income (Radelet, 2007).

Grubler (1995) showed that structural change is a process of industrialization and the source of productivity growth and employment, which moves away from low productivity agriculture towards manufacturing. Industrialization is economically driven by many individual innovations, thus making industry a powerful agent of global change (Grubler, 1995).

4.2.3 Summary

The establishment of rubber manufacturing processing plans could be the means for promoting economic growth in Liberia, as it has the prospect of improving other sectors in the economy. Economic growth in Liberia demands structural transformation from low agricultural productivity to high-productivity manufacturing. Thus, government intervention using industrial policy instruments would be the appropriate tool to transform the country's economy.

Due to the civil conflict that destroyed Liberia's economy, institutions and infrastructure, the transformation of the Liberian industrial sector has been difficult. To pull the country out of the vicious circle of growth without development, the rubber manufacturing industry needs to be developed through aggressive industrial policies such as those in Malaysia. Industrial policies are the appropriate tools to breach the development gap between the current resource-based agricultural economy to an industry-based economy. This would not only be beneficial for the government's revenue generation but also for the general populace, as the rubber industry serves as the second largest employer in the labour force. Other hindrances to the improvement of the industrial rubber sector in Liberia include low human capital development (poor management skills and training), and lack of technological knowledge about farming innovations and the new industrial era.

4.3 Analysis of the Malaysian rubber industry

4.3.1 Overview of the Malaysian rubber manufacturing industries

Malaysia's rapid economic growth was sustained through export-led industrialization that brought about increased living standards and improvement in the distribution of income. Manufacturing of rubber and tin were important in the initial stages of industrialization, as they paved the way for Malaysia's development. Their industrialization strategy focused on the diversification of agricultural exports. Malaysia's rapid development from agriculture to industry was successful through government policies that industrialized the economy (Yusoff, Hasan & Jalil, 2000).

Samuel P. Jackson (2015) demonstrated in his research that Malaysia, Thailand, and Indonesia produced 96% of the world's natural rubber. Amongst these countries, Malaysia had the largest rubber production capacity, accounting for 45% of worldwide rubber production. The world market price for Standard Malaysia Rubber (SMR) raw latex was valued at $70.72 for one metric ton, as shown in Figure 4.1 below. Of the top ten countries that exported natural rubber globally from 2018 to 2019, Liberia ranked ninth, with a US$146,123,000 total value of rubber, which is equivalent to +14.5% of GDP. Natural rubber exports by country globally totalled US$13.1 billion in 2019, with Asian countries exporting 82.3%, and African countries exporting 11% (Jackson, 2015).

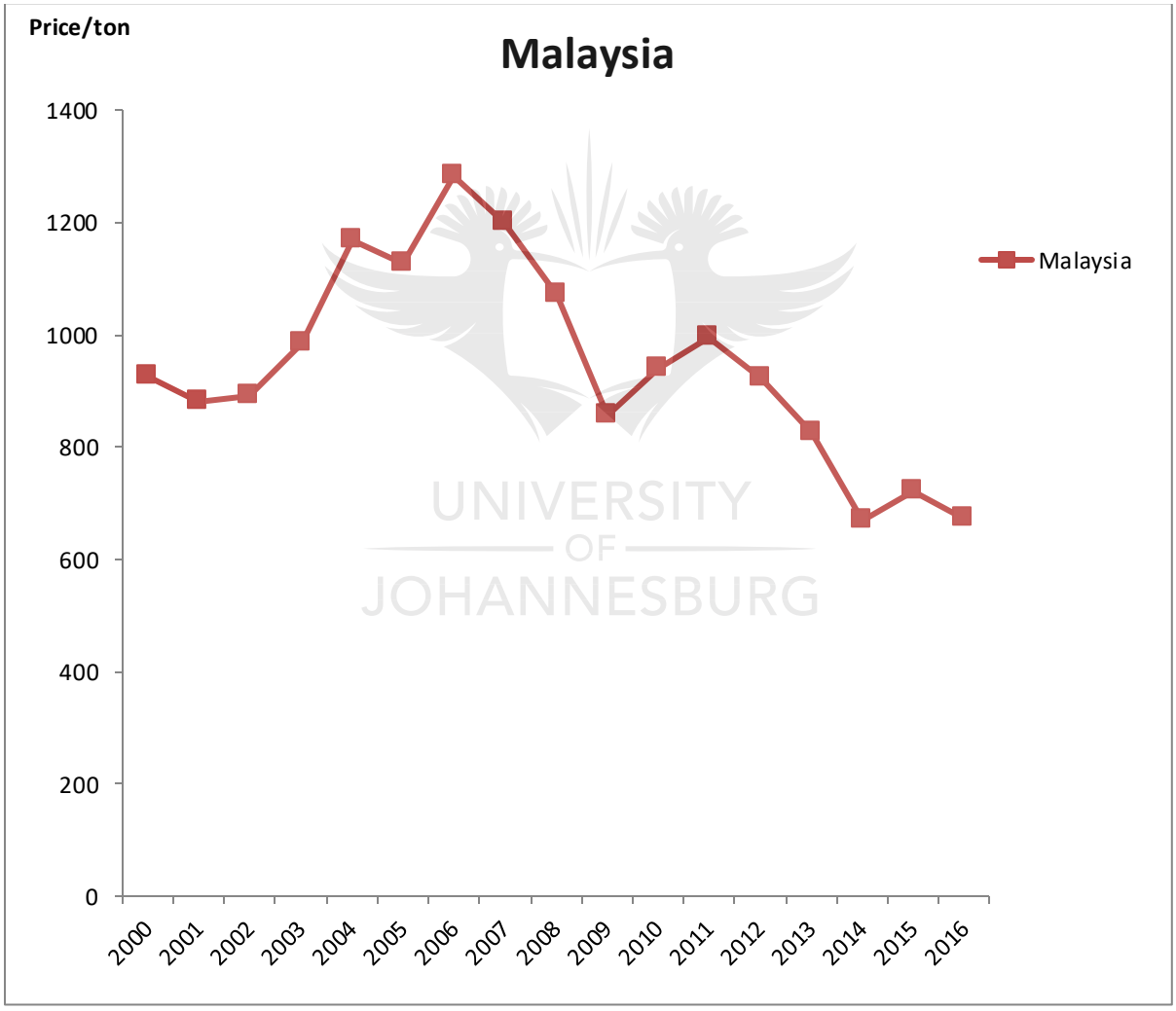

Figure 4.1: Standard Malaysian Rubber price, 2000-2016.

Source: FAOSTAT 2016

Andaya (2016) demonstrated that the history of the rubber manufacturing industry in Malaysia is divided into three phases that reflect macroeconomic policy and specific industrialization strategies. The first phase occurred from 1920 to 1970, with an open economic system where protectionist measures such as tariffs on imports were practiced in the 1960s to support the establishment of the domestic industrial base. The second phase lasted from 1970 to 1985. This was a period during which there was government intervened, promoting industrialization to realign control of economic activities in favour of Malayan ethnic groups under the NEP. The advent of phase three (1985 to 2005) the began with the implementation of the industrial master plan that identified rubber products as priority areas for the expansion of this resource-based industry in the economy (Andaya, 2016).

4.3.2 Industrialization and Industrial Policy in Malaysia: Industrial Master Plans

First Industrial Master Plan (IMP-1) 1986-1995

Upon the failure of the heavy industrialization policy, the Malaysian government commissioned UNIDO to prepare a detailed sector-by-sector industrial development guide for a ten-year period, in collaboration with the Malaysian Industrial Development Authority (MIDA). The IMP discovered some structural weaknesses in the past industrialization policies which, according to Asid (2010**,** p.100), included: "lack of local industrial policy, technology capacity leading to over-dependence on foreign expertise; shortage of experienced engineers and technicians coupled with lack of technical training programs; excessive protection of domestic industry leading to poorly efficient working practices and decline in motivation to upgrade technology and management systems; biases to large firm and capital intensive industries; weak interlinkages; over-concentration on electronics and textiles in Free Zones; and constraints imposed by NEP restructuring efforts".

The IMP midterm review by UNIDO focused on growth acceleration that enhanced development of the selected industries in accordance with Malaysia's resources availability and comparative cost advantage, by moving from manufacturing for the domestic market towards being more export-oriented. The IMP recommendations included the following points:

Malaysia should accelerate outward-oriented industrialization, with a focus on large-scale expansion of manufactured exports, and develop resource-based industries for export.

The country should diversify and upgrade non-resource-based industries for export and selectively promote strategies for heavy industries to support exports. Modernization and rationalization of the industrial structure should lead to developing technologies and manpower, while the existing infrastructure should be considered when planning physical locations for new industries.

The major strategy for each industry in Malaysia was characterized by an export-oriented approach. Free trade was the underlying argument, while advocating support for import substitution, keeping infant industry protection to a minimum, and eliminating discrimination against exporting (Asid, 2010).

4.3.3 Second Industrial Master Plan (IMP-2) 1996-2005

The IMP-2 categorized the cluster developments of the manufacturing sector into three divisions: internationally linked, policy-driven, and resource-based. The plans proposed a technologically based industrial design operation of factory automation linking research and development (R&D), distribution, and marketing activities. The second plan targeted the diversification of rubber products to decrease reliance on latex-dipped goods and identified rubber engineering and industrial products as having high value-added technology.

According to the plan, resource-based industries are naturally evolving clusters that are highly dependent on local factors, including inputs, ownership, and technology. Resource-based industries include the manufacture of products from rubber, palm oil, wood, and petroleum. Policy-driven industries are those created by government policy interventions that are totally dependent on foreign technology. Automobile and automotive components, including steel and machinery industries, are examples of policy-driven industries. Examples of internationally linked industries included export-oriented multinational corporations situated in Free Trade Zones producing electronic components, electrical appliances and textiles (Mohamed, *et al*., 2018).

By the early 1990s, the first Industrial Master Plan's success in reviving export-led growth in a buoyant economy generated pressure for structural change. As a result,

the IMP's targets for inward investment, industrial output and export growth were outstripped. To quote the correspondence of the ministry at the time: "The plan addresses the problem of industrial weaknesses, including technological dependency, lack of indigenous technological capability, and poor linkages. The structural paradigm was recommended in the Porter model cluster-based approach" (Mohamed, *et al.*, 2018).

4.3.4 Agricultural Development Strategy

Islam and Chowdhury (1997) showed that the Malaysian government, through the Ministry of Agriculture, which is responsible for the growth and expansion of agricultural development, provided assistance to existing smallholders of rubber farms in replanting rubber trees to allow paddy producers to increase their long-term yield and market their crops (Islam & Chowdhury, 1997).

After more than 120 years of effort to develop new rubber products, the rubber industries are moving presently into a new growth phase, diversifying further in other sectors like palm oil production and processing to finished products, thus moving up the value-added chain. Export growths in the industry have increased, as indicated in Figure 4.2 below. The latex products are a significant export revenue earner, and include unprocessed rubber as well as tyres, footwear, and other industrial/general rubber products (blue column). Of this, the proportion of tire related products along with industrial and general rubber products is relatively high. Malaysia presently accounts for 80% of the world's exports of catheters, 70% of latex thread, and 60% of natural rubber gloves (Yusof & Bhattasali, 2008).

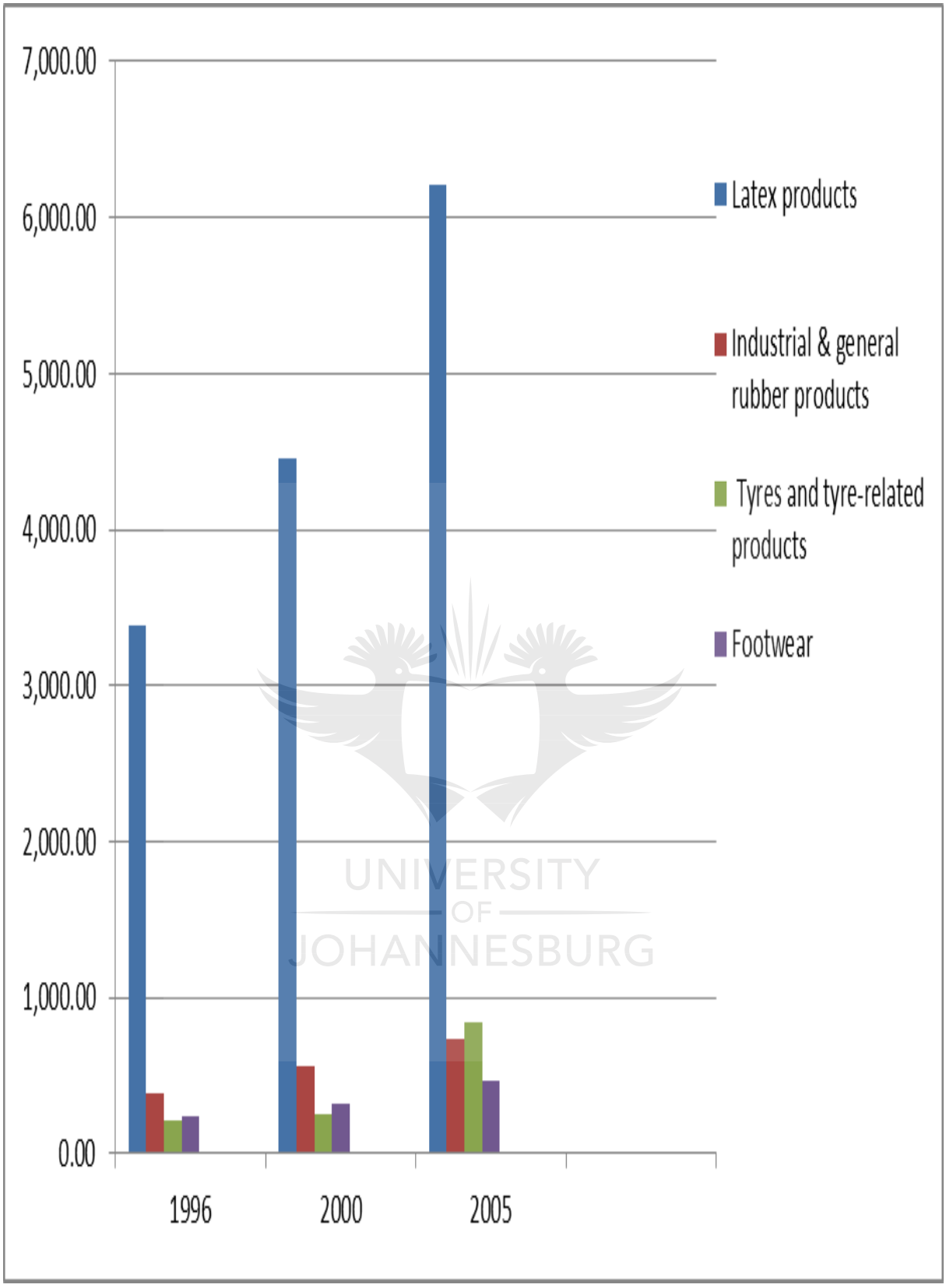

Figure 4.2 Trade performances of rubber products exports in Malaysia, 1996-2005

Source: MITI (2006)

Bakar Baki (2009) demonstrated that agricultural development can be achieved through the establishment of a policy environment that eliminates bias against agriculture by giving priority to the development of physical and human infrastructures in rural areas, and by improving agricultural technologies. The agricultural development in Malaysia improved in a holistic manner due to several factors, including: status of the natural resource base, change in climate, land extension degradation, technology and science advancement, urbanization, commercialization, and trade liberalization (Bakar, 2009).

4.4 New Economic Policy (NEP) 1970-1990

The NEP, scheduled to last for twenty years (from1970 to 1990), was aimed at improving the economic status of all Malayans (Jomo, 1986: 256-68). The objective of the NEP was to restructure the economy and the society, thereby eliminating the close correlation between race and economic status. The aim was to decrease poverty regardless of race. These objectives were achieved by the restructuring of employment to reflect the country's ethnic composition, and the redistribution of national wealth (Drabble, 2012).

The NEP finally came to an end in 1990 after largely achieving its objective, as reflected in the economy of Malayan society today. During the implementation of the NEP, one important development was the expansion of the middle class, which compromised almost a third of the workforce in 1990. The figure had risen to 27% of the population, compared to 13% in 1970 (Mehmet, 2013).

4.4.1 Export-oriented Industrialization under the NEP

The NEP came into being after the riots in 1969 to solve the communal problems that had brought about the rioting. The non-Malay (mostly people of Indian and Chinese origin) were given assurances by the government that the restructuring was only occurring through sustainable economic growth, and not through redistribution of resources. This was done to avoid particular groups of people feeling deprived (Andaya & Andaya, 2001: 303). In the overall scheme, the position of industrial policy in modernizing and urbanizing the Malayan people, falls under the social and

economic restructuring of the NEP. The political imperative of the NEP gave rural Malayans employment opportunities by providing fresh impetus for industrial growth and enabling them to find work opportunities in export-oriented industries. Two types of export-oriented industrialization were encouraged for the production of rubber and the expansion of palm oil and tropical timber processing as primary commodities (Mehmet, 2013).

According to Jomo (2007), Malaysia retreated from its heavy industrialization programme, and instead moved towards the higher value manufacturing export market, building on strong macroeconomic stability, while still retaining its export-oriented agriculture. All this occurred in response to the 1980s recession. The ratio of manufacturing and exports grew rapidly to 8% of total GDP in the period from 1988-97. Malaysian manufacturing in 2003 contributed 3.9% to its GDP, while manufacturing employment accounted for 27.7% of total employment, resulting in increased wage levels and productivity (Jomo, 2007).

Ragayah (2017) showed that in the export-oriented industries, government intervention was through licensing quotas and regulation of prices that encouraged private sector development through various subsidies. For the government to meet its foreign debt payment, export-oriented industries were emphasized, increasing investment incentives and reducing development taxes. This shifted development priorities to export-oriented industry, realizing export earnings of RM17, 993.10, a trade balance of RM12, 010.74 and imports amounting to RM5, 982.35 from 2000 to 2015, as indicated in Figure 4.3 below. The growth of local markets was promoted, foreign investments increased, and the export of manufactured goods was raised, all of which stimulated economic growth. The EOI strategy, in other words, resulted in impressive economic transformation, making Malaysia dependent on low-cost labour. The country had intensified manufacturing exports in order to meet the required interest payments. This forced the economy to enact policies aimed at attracting foreign capital (Ragayah, 2017)

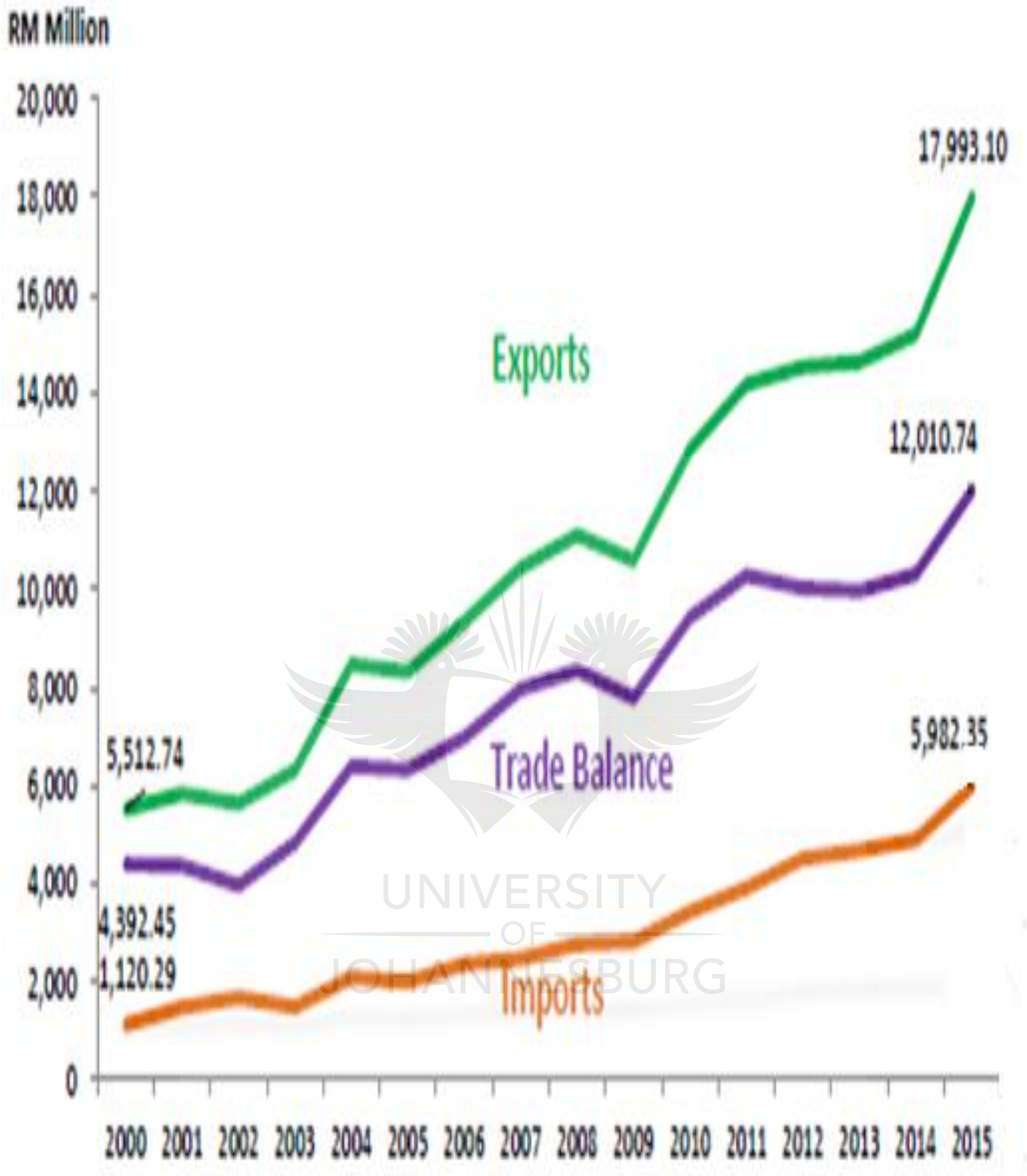

Figure 4.3 Malaysia's export/import and trade balance, 2000- 2015
Source: Dept. of statistics Malaysia

4.4.2 Government Policies in support of the development of the Malaysian rubber industry

The economic development of Malaysia was based on structural change from agriculture to manufacturing, mainly with the export of two commodities: tin and rubber. The rubber sector was identified as a priority sector in which Malaysia had a comparative advantage over a group of seven resource-based industries. The government formulated a long-term strategy that made the manufacturing of rubber products one of the leading industries in the resource-based sector. This converted the country from a primary commodity exporter into one that utilized a raw material base for a vertically integrated, export-oriented manufacturing industry producing intermediate and consumer rubber goods (Asid, 2010).

Kuruvilla (1995) demonstrated that the government National Development Policy "Visions 2020", targeted the restructuring of the economy through privatization of the industrial base to enhance human resource development and the upgrading of skills. At the macro and micro levels, the plan has an important future implication for industrial relations and human resource policies (Kuruvilla, 1995).

4.4.3 Rubber goods manufacturing in Malaysia (1920-1970)

As in Liberia, the natural rubber production from the *Hevea* trees provided the source of raw latex materials. In Malaysia, the manufacture of rubber started in 1937, after the Czech footwear Company Bata, began production in Klang, Malaysia, employing staff from India to train local workers (Rasiah, 1995).

Owing to the government's efforts, foreign companies were attracted to invest in Malaysia. This resulted in the formation of Malayan global corporate ownership partnerships, while nurturing industrial enterprises into niche products within the complex value chains. Despite limited entrepreneurial skills within the country, the government privatization scheme was a powerful tool for expanding private enterprise, which resulted in the formation of new firms offering better long-term prospects. This regime was characterized by policymaking and ensuring political stability, with high attention paid to growth with equity. People in government and in the society had the ability to learn through learning by doing, and to profit from the experience of others. This was key to the advancement of rubber goods manufacturing in Malaysia. Furthermore, the reforms cluster approach to policy

implementation was effective in addressing several coordination problems. Because of these government policies, five new firms emerged and are still in businesses today. Nam Bee, founded in 1938, produces master batch and tyre materials; Kinta Rubber was established in 1940 and manufactures moulded products. The company then entered into the specialised area of industrial calendar products; Kayel Rubber came into being in 1940, and is a manufacturer of products for export and a major trader within Malaysia.

Furthermore, Swan Rubber and Sun Yuen Rubber, both founded in 1956, are involved in the manufacturing of rubber goods. Sun Yuen produces inner tubes for wheelbarrow wheels. The fruitful collaboration between the government and these companies through public/private partnerships (PPPs), led to an increase in the production and export of inner tubes, footwear, industrial rubber goods, tyres, general rubber goods, and latex goods, as indicated in Figure 4.below. These interventions by the Malaysian government are absent in Liberia, posing a major setback in achieving industrialization and development in that country (Abdullah & Jalil, 2006).

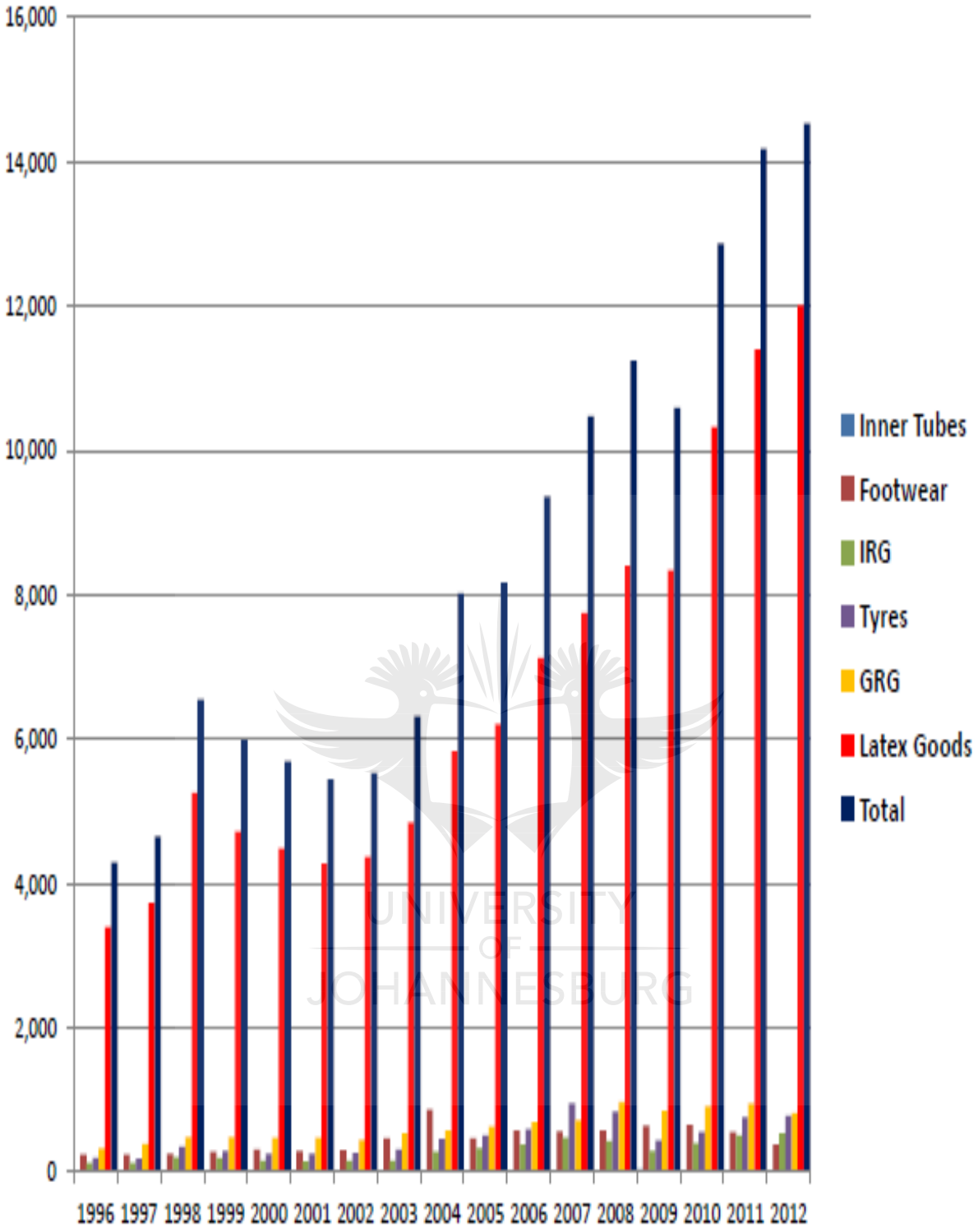

Figure 4.4 Malaysia's revenue generation from exports of rubber products (RM million), 1996-2012

Source: MRD, Dpt. of Statistics

Rasiah (1995: 60-1) documented that the production of rubber footwear, shoes and heels, sheeting, foam for rubber goods, tubing, tyres, and inner tube production in Malaysia grew substantially in the 1950s. This substantial growth resulted in the export of 5.3 million pairs of shoes and slippers. Bicycle tyre exports also grew by 20% annually from 1953 to 1995 (Rasiah, 1995).

Rubber Goods Manufacture in Malaysia, 1970-1985

The Malaysian government changed its stance on industrialization after the formation of the NEP in 1970. The first decision in 1972 was for Pernas, the government trading and Investment Company, to establish a joint venture with Goodyear Tyres and with the Rubber Company, an American multinational company manufacturing automobile tyres(Saham, 1980:46). The number of industrial firms in the country involved in making rubber production increased from 50 in 1970 to 135 by 1985 (Abdul Hamid Sawal, 2001: 111). This indicates a substantial increase of 85 companies within the sector. Output increased from RM120 million to RM650 million in the same period. At the same time, exports increased from RM17 million in 1970 to RM212 million in 1985 (Rasiah, 1995).

Rubber Goods Manufacture in Malaysia, 1985-2005

The bleak economic climate in 1985 caused by the economic recession compelled the government to re-appraise their policies on industrialization by commissioning UNIDO to prepare its first Industrial Master Plan (IMP-1). The plan, in line with government policy objectives, advocated export-oriented industrialization for the expansion of resource-based manufactured goods. The rubber sector then became a priority among their resource-based industries, since it was in this realm that Malaysia had a comparative advantage. IMP-1 goals were to increase domestic and foreign consumption of natural rubber from 65,000 tons in 1985 to 300,000 metric tons by 1995 (Rasuah, 1995).

The recommendations of UNIDO give priority to FDI, with the notion that overseas capital could provide the highest rate of technological upgrading. The role of FDI in Malaysia's resource-based industrialization spearheaded the enhancement of its comparative advantage by means of medium to high value-added manufactured products that competed in the global markets (UNIDO, 1991:62). The expansion of the tyre industry was emphasised in the IMP's development strategy, with priority

areas in the rubber manufacturing sectors that would increase Malaysia's share in world production to 1.5% by 1995 (Rasiah, 1995).

Anuwar Ali (1992: 42) shows the details of the IMP's objectives as: to encourage aggressive export promotion as well as development of selected key rubber products, particularly tyres and latex-dipped goods. This entailed improving the level of competitiveness through adopting cost-reduction measures and increasing productivity and product quality to meet the IMP export targets. The idea was to encourage greater FDI from multinational corporations in order to gain access to export markets and to attain greater cooperation in R&D activities, ensuring that Malaysia was placed in the forefront of rubber manufacturing and natural rubber production. This was achieved through the provision of additional financial support to local and overseas institutions (Ali, 1992).

4.4 Conclusion

Malaysia was successful in developing her huge and advanced rubber industry through the adoption of macroeconomic policies that led to the implementation of the New Economic Policies plan, and the development of national policy and industrialization strategies. Other policies included the formulation of the Import Substitution Industrialization strategies (ISI), and export-orientation strategies (EOI). The implementation of the ISI and EOI strategies was successful through public-private partnerships, which motivated private investment and promoted value addition to products with export potential. FDI was also encouraged through Malaysia's Investment Incentive Act of 1968, which brought about the establishment of an export processing zone (EPZ) to attract MNCs.

Government intervention in the industrialization process ensured the structural transformation from low productivity agriculture to manufacturing, by using tin and rubber. This promoted general industrialization, which led to the transformation of the country from an agricultural economy to a Newly Industrialized Economy.

4.5 Comparison of Malaysia and Liberia industrial rubber sectors

4.5.1 Government support to the development of rubber industry in Malaysia Plantation History:

In 1957, after the declaration of independence, the economy of Malaysia changed from dependence on export of raw products to the New Industrial Economy (NIE), which focused mainly on finished consumable rubber manufacturing products. This resulted in large segments of the population obtaining jobs in the rubber manufacturing sector. The strategy implementation was divided into three phases during the period 1920 to 2005.

The first phase, from 1920 to 1970, was a *laissez-faire* policy. The second phase under the NEP brought about government intervention policies that promoted industrialization during the era 1970 to 1985. The effect was to control economic activity in favour of Malaysian ethnicity. The third phase started in 1985 and ended in 2005, and formalized resource-based industry and strengthened expansion of the economy.

In contrast, Liberia, which had been in the natural rubber business since the 1890s under the administration of former President Hilary R.W. Johnson, who was succeeded by President Arthur Barclay, who signed the ninety-nine year Firestone concession agreements in 1926, were unable to place Liberia in the world natural rubber market as a major player. These long-term concession agreements contributed to the country's growth without development. Rubber in Liberia is by far the major product of commercial farms, but management of these farms is very poor due to lack of capacity-building and modern technical knowledge (Freeman, 2011).

4.5.2 Legal framework

In Malaysia, government support for the rubber industry was based on the prioritization of this sector as opposed to their other resource-based industries, because the sector had numerous natural comparative advantages. For the following ten years, the Industrial Master Plan (IMP) enabled growth and expansion of the rubber industry. Malaysia's long-term plan resulted in the transformation of the rubber industry from being a primary exporter of raw materials to a vertical exporter of finished consumable rubber products. The role of FDI was significant, as it

spearheaded the resource-based industrialization by enhancing high value-added manufactured products that competed successfully on the world markets (Haque, 2003).

In Liberia in 2011, Ellen Johnson's government, in collaboration with UNMIL, successfully formed the Rubber Plantations Task Force in 2006. Ex-combatants from some of the major rubber farms that they had occupied during the war were removed. This was a significant step, but support for the rubber industry remained absent, mainly due to the failure of past governments to recognize the sector as an important source of potential revenue and economic growth. The prevailing poor investment climate, Liberia's ability to engage with FDI was low due to its poor investment climate and numerous obstacles to trade and investment (Ministry of Commerce Liberia Industrial Policy, 2011).

4.5.3 Rubber goods manufacturing

In Malaysia, rubber goods manufacturing began in 1920. According to Allen and Donnithorne (1954: 216) and Rasiah (1995: 60). According to a World Bank report on the protection of infant industries, government changed its plan after the NEP formulation, in order to encourage export oriented industries. This was facilitated by good marketing strategies and sound government policies. The goal of the IMP-1 was to increase domestic consumption of local rubber through the implementation of local content policies (Rasiah, 1995).

In the case of Liberia, rubber manufacturing requires a focused and innovative government that is resulted oriented. The transformation of the industry cannot be in the form of timeworn models that emphasize low value added export rather than transforming the dreary rubber industry in Liberia. The manufacture of finished rubber products requires skilful manpower (Samuel, 2015).

4.5.4 Industrial Master Plans, Malaysia

The implementation of the IMP commissioned to UNIDO by the Malaysian government from 1986 to 1995, changed the Malaysian economy by aiming for an open oriented economic system instead of the first *laissez-faire* policy. The UNIDO report realigned the use of Malaysia's available resources and comparative advantages to move from inward domestic manufacturing towards outward oriented

export manufacturing. The second Industrial Master Plan recommended avoiding reliance on raw latex goods, and identified engineering and the production of industrial rubber products with high potential values as a priority (Asid, 2010).

In 2011, Liberia, after many decades, finally adopted an industrialization policy similar to that of Malaysia, by initiating the formulation of an industrial policy through the Ministry of Commerce and Industry. This was in response to the government's Poverty Reduction Strategy (PRS), which aimed at providing an enabling industrial sector that would generate equitable growth in the long term. A vibrant industrial sector generates employment that brings about the development of backward and forward linkages in an economy. This signifies the importance of mainstreaming industrialization into national development efforts. The constraint in Liberia had been the lack of funding by the national government (Ministry of Commerce Liberia Industrial Policy, 2011).

4.5.5 Agricultural Development Strategy

In Malaysia, the government's Agricultural Development Strategy increased the planting of new rubber trees to replace the exhausted ones, which assisted smallholder farmers. Furthermore, the creation of state-owned enterprises (SOEs) encouraged Malayans to participate in sustainable business and in the growth of the economy. This was done through the use of public funds for the creation and empowering of entrepreneurs, which enlarged the Malaysian middle class (Islam & Chowdhury, 1997).

In the case of Liberia, more than 70% of the Liberian population depends on agriculture as a source of livelihood, and many households rely on rubber farming for their sustenance. It is a major generator of government revenue, accounting for 34.6% of export revenue in 2016. Agricultural productivity in Liberia is low because production and agro-processing are not mechanized, and post-harvest handling infrastructure and resources are lacking. The Ministry of Agriculture extension service is weak due to inadequate logistics, under staffing, and lack of experts in various fields of agriculture. The absence of available and robust data on the Liberian agricultural sector makes it impossible to forecast future developments or allow for efficient policy recommendations (Zinnah, 2016).

4.5.6 Export-orientated Industrialization

Malaysia: The political dimension of the NEP gave employment opportunities to rural population and provided motivation for industrial growth by switching to export industries. Export-oriented industrialization was encouraged in two areas: firstly, the production of resource-based export rubber production, and secondly, palm oil and timber as primary commodities (Jomo, 1990).

In contrast, the Liberian government formulated the National Export Strategy (NES) to support businesses and provide incentives to key businesses sectors as a means of creating a vibrant and diversified export basket. The objectives of the NES are: to ensure inclusive, equitable and sustainable production; to lift Liberia out of poverty by creating an enabling environment that encourages investment and entrepreneurship; and to develop the domestic private sector. This includes micro, small, and medium enterprises (MSMEs) development, which is expected to enhance the capacity of both the private and public sectors involved in trade. Further, the aim is to support institutions in diminishing the cost of doing business in Liberia and to improve the domestic trade sector, enabling them meet local and international standards (Ministry of Commerce Liberia Industrial Policy, 2011).

4.6 Similarities and Differences between the rubber industries in Malaysia and Liberia

i. Government policy to support the rubber industries

Malaysia rubber industry: In Malaysia, the government's support to the rubber industry was done through the identification of the rubber industry as a priority sector, amongst the seven resource-based industries where Malaysia had comparative advantages. This led to the development of a long-term strategy to make the rubber sector one of the leading industrial sectors by converting from a primary exporter to export-oriented intermediate rubber goods (Manivong & Cramb, 2008).

Liberian rubber industry: The Liberian government has not crafted a specific policy instrument in support of the industrial rubber sector since the commencement of the country's rubber activities in the 1800s, due to

institutional weakness. The Industrial Policy of 2011 covers the entire industrial sector and not the rubber industry alone. This is a significant weakness on the part of the government.

ii. Government agencies.

Malaysia: The Ministry of Plantation Industries and Commodities (MPIC), established 1972, has the statutory mandate to formulate policies and strategies, as well as to supervise other departments under the Ministry of Financial Management. The mission of the MPIC is to make Malaysia internationally competitive in commodity-based industries and thus contribute to national development (Malaysian Timber Iindustry Board, 2006).

Liberia: The government agency with oversight responsibilities of the rubber industry in Liberia is the Ministry of Agriculture, created by an Act of the National Legislature on 11th May 1972. It has the mandate to formulate policies and strategies.

iii. Legal frameworks

Malaysia: the rubber goods manufacturing plans were formulated in three phases: Phase one (1920-1970) marks the production of natural rubber and the fabrication of rubber products (Allen & Donnithorne, 1954: 216).

Rasiah (1995: 60-1) shows that rubber output production grew substantially, resulting in the export of 5.3 million pairs of shoes and slippers in 1995, while bicycle tubes grew by 20% in 1993 (Rasiah, 1995).

Phase two (1970-1985) brought about the formulation of the NEP. In 1972, under the NEP, the government entered into a joint venture agreement with the Goodyear Tyre Company through Pernas, the government trading and investment company, which resulted in an increase of production value from RM120 million to RM650 million.

Phase three (1985-2005) emerged as a result of the recession. UNIDO was commissioned to prepare its first IMP-1 plan in line with government policies. UNIDO's recommendations recognized FDI in the provisions of technology upgrading through the Industrial Master Plan (Haque, 2003).

Liberia: The 53rd National Legislature passed into law the National Industrial Policy that now serves as the legal policy instrument covering the entire industrial sectors. The policy takes into consideration three major areas: Legal and regulatory reforms, Infrastructure development, and Human capital development. The government is concerned that industries should operate within the rule of law, and that they should benefit from the protection provided. This policy places priority on creating an environment which boosts business confidence by reducing risks (Ministry of Commerce Liberia Industrial Policy, 2011).

iv. Government structure

Malaysia: Malaysia is a constitutional monarchy with a parliamentary system of government, headed by a prime minister selected through periodic, multiparty elections. The country's main organs are its Legislative Authority, the Executive Branch, and the Judiciary.

The Legislative branch consists of the Lower House of Representatives and the Upper House, which is also called the Senate, the members of which are all elected through democratic proceedings.

The Executive branch is headed by a prime minister, who is also a member of the Lower House of parliament. Members of the cabinet are chosen from both houses of parliament. The prime minister does not have the constitutional right to appoint ministers.

The Judiciary system consists of the Federal Court along with the Court of Appeal and two other High Courts: Peninsular Malaysia and East Malaysia (Milne, 1967).

Liberia: The government of Liberia is similarly structured in three different categories: the Executive Branch, the Legislative Authority, and the Judiciary. The country is governed by a constitution.

The Executive branch is headed by an elected president who presides over all the various ministries and agencies. In contrast with Malaysia, the president has the constitutional right to appoint and dismiss all ministers, deputies, assistant ministers, and heads of public corporations and agencies. The appointments (but not dismissals) are made with the consent of the national

legislature. The legislature represents various constituencies and establishes laws, which are interpreted by the judiciary (Ojo & Agbude, 2012).

Similar to Malaysia, the Legislature has two houses (the House of Representatives and the Senate). The vice president presides over the House of Representatives, whereas the president presides over the cabinet ministers.

v. Human Capital Developments

Malaysia: Malaysian human capital development is a major component of social economic development, and is governed by the Ministry of Human Resources, which has similar functions to those of the Ministry of Education. Jajri and Ismail (2010), showed that human capital is significantly related to economic growth, as reflected in the GDP. During the period 1996-2005, the Federal Government allocated RM42.4 billion for human capital and technology development. The government increased the allocated amount for technical and vocational schools to enable the implementation of the eighth Industrial Master Plan. A further RM900 million was invested to amend the allocated amount, due to the demand for skilled labour forces (Awang, 2004).

Liberia: In Liberia, the capacity of the industrial rubber sector in terms of human capital remains a challenge, despite the desire of some entrepreneurs, especially smallholder farms, to acquire new knowledge. Most smallholder farmers are faced with a shortfall of managerial skills and family related challenges, while some are concerned about the rehabilitation of their farms. Training costs and recruitment to various farms are high, especially where semi-skilled or skilled labour is required. This has caused some smaller farms to be abandoned, and they have now returned to bush. Liberia's counterpart to the Malaysian Ministry of Human Resources is the Ministry of Education. While the Malayans invested substantial amounts of money in human capital development, Liberia has yet to do this. A positive step in the right direction has been the abolition of fees for public universities. However, for the section of the population that does not attend these universities, there are vocational training institutions that are underfunded and where fees have not been abolished. As a result, the general level of education amongst Liberians is far inferior to that of the Malayans (Ministry of Commerce Liberia Industrial Policy, 2011).

vi. Financial capacities.

Malaysia: The Malaysian Plantation Industries and Commodities Ministry has made available RM261 million aid to boost the financial capacity of smallholders' farms nationwide. Smallholder rubber farmers can also apply for financial assistance through the Malaysian Rubber Board by submitting loan forms. The form is then processed, and the loan credited to the applicant's account. The government is committed to the replanting of rubber trees on the smaller farms, and to various R&D efforts. An additional RM22 million was approved by the cabinet for the purpose of rehabilitating rubber farms and for the renewal of trees (Manivong & Cramb, 2008).

Liberia: In Liberia, the financing capacity of most rubber farms, especially smallholders' farms, is done through personal resources, which imposes a major constraint on farm maintenance. Some commercial banks make loans available, but with high interest rates due to lack of collateral and high risk, and the Liberian government has not provided much funding for the replanting and rehabilitation of smallholders' rubber farms (Ministry of Commerce Liberia Industry Policy, 2011).

4.7 Features common to Malaysia and Liberia

Malaysia government structure: Administration of the state is run by the Executive, the Houses of Parliament (Lower and Upper Houses), and the Judiciary. The Malaysian executive branch is headed by a prime minister, who is a member of Parliament.

Government agency: The Ministry of Plantation Industries and Commodities (MPIC) was founded in 2004 with the objective of expanding agriculture and economy.

Liberia's government structure: Administration of the state is run by the three branches of government (the Executive, the Legislature i.e. Lower and Upper Houses of Parliament, and the Judiciary). The only difference is that, for Liberia, the Executive is headed by an elected president.

Government agency: The Ministry of Agriculture was established by an act on 11th May 1972, with objective to seek the expansion of agriculture and economy thus making the two countries to function in the same way.

Differences: Factors promoting rubber growth in Malaysia not currently in Liberia

The establishment of a Rubber Manufacturing Goods Plan from 1920 to 2005, laid the foundation for the growth of the Malaysian rubber industry. The expansion of the rubber manufacturing sector was realized when the government commissioned UNDIO to prepare its first industrial Master Plan (IMP-1) in alignment with the government's industrial plan. The government's plan for a ten-year revitalization of the Industrial Master Plan was done in collaboration with the Malaysian Industrial Development Authority (MIDA) (Mehmet, 1986).

Industrial rubber policies were developed by the government to promote modernization and strengthen technological capabilities. In support of modernization, the role of FDI was significant in spearheading the manufacture of products that are now competing in global markets. The government took measures to alleviate the financial difficulties of farmers through the formulation of New Economic Policies (NEP), which aimed at strengthening the country's economic structure by improving the livelihood of the population. The NEP transformed the social and economic sectors by radically changing the composition of employment and ensuring ownership of assets in the interests of Malayans. This made the country a member of the New Industrialized Economic (NIE) countries of the world. Furthermore, three specialized industrial parks were created, with modern facilities for the advancement of technology, manufacturing activities, and research and development institutes (Mehmet, 1986).

In contrast, the government of Liberia has not prioritized the expansion and modernisation of the rubber industry. Since the promulgation of the Industrial Policy, which currently serves as a policy instrument covering the entire industrial sector (as opposed to the specific development of the rubber industry), the government has merely created awareness, without providing direct support to the industrial rubber sector. According to the policy, the government is to provide support for industrial development, including capacity- building and promoting domestic training programmes. Prior to the civil war, Liberia had industrial parks, but these were

destroyed during the civil war and have not yet been rehabilitated (Ministry of Commerce Liberia Industrial Policy, 2011)

Liberia can learn from the comparisons outlined above, especially from the IMPI prepared by UNIDO in collaboration with the Malaysian Industrial Development Authority, which advocated export-oriented industrialization strategies based on expansion of the production of resource-based manufacturing goods that strengthened the economy in line with the government's policy objectives. These long-term policy strategies are key technological instruments that Liberia can learn from and apply in transforming the country into a major rubber manufacturing exporter in Africa, as Malaysia is in Asia.

Chapter V

5.1 Introduction

This chapter summarizes the findings, conclusions, and policy implications gathered from the research. The findings were summarized in combination with the research objectives.

5.1.1 Summary

The arrival in Liberia of Firestone in 1926 under the administration of President Charles D.B. King opened up the Liberian rubber industry to the world. Therefore, Liberia's exposure to the rubber market started much earlier than that of Malaysia. The motivation for this research was to investigate why Liberia, with the world's largest contiguous rubber plantation, has failed to develop her rubber industry. Despite Liberia's long history in rubber plantations, and with the presence of more than five multinational rubber companies, the country's rubber industry still lacks secondary or tertiary processing activities. Instead of supporting value addition in raw latex products, these multinational companies produce raw rubber latexes and export them to foreign countries for processing. Major constraints facing Liberia's rubber industries include: weak institutions, poor governance, failing infrastructure, small domestic market, lack of information amongst the general populace and coordination failure, unskilled labour force, low human capital development, limited government support, weak legal enforcement and a poor regulatory framework, and lack of support to specific areas like the creation of SEZs for clustering investments. All of these contribute to the high cost of entry into the investment climate and of doing business in Liberia. The global economic crisis has also contributed to Liberia's nightmare by a decline in demand and the price of iron ore and rubber. This has caused serious instability and increased government deficits, inflation, and a fall in export earnings and GDP.

Rubber industry capacity: From a monetary point of view, the latexes of rubber and wood have economic value and are all-important in contributing to economic growth, as the production cost per cubic meter of rubber wood is only about 30% of the production cost of certain other forest species. Natural rubber latex products such as gloves offer tremendous opportunities in Malaysia and Japan, as these countries have set up plant factories to produce them.

A qualitative econometric research approach involving the use of a comparative case study with Malaysia has been employed to support the research objectives in identifying those policy instruments used by Malaysia that elevated her rubber industry from a valueless sector to a sophisticated industry.

Rubber was recognized by the Malaysian government amongst seven resource-based commodities with high potential that led to sustained growth through export-led industrialization. Malaysia's rapid development from agriculture to industry occurred through government policies to industrialize the economy. In its drive towards industrialization, the Malaysian government adopted two economic policies and two industrialization strategies that were instrumental in her journey to industrialization. The two economic policies were the New Economic Policy and the development of the Malaysian Development Authority (MDA), while the two industrialization strategies were the Import Substitution Industrialization (ISI) and the Export-oriented Industrialization (EOI) strategies. These strategies were the engine behind Malaysia's industrialization. They serve as a landmark's for Liberia to learn, through technology transfer, to become a rubber manufacturing hub in Africa.

5.2 Policy implications

1. **Modernization of the rubber industry:** The government needs to develop industrial policies to support the modernization of rubber industries that are important players in the value chain process of the larger industrial setups already existing in Liberia.
2. **Prioritizing the Liberalization Policy:** this aims to empower Liberians. Portions of the harvest of the smallholding farmers should be reserved for sale to the local manufacturing plant rather than to Firestone and LAC. Similarly, some of the valuable rubber wood should be processed in Liberia itself, instead of using it as domestic fuel.
3. **Research and Development (R&D):** natural rubber and rubber wood manufacturing, processing factories with R&D facilities should be set up at the University of Liberia, the College of Agriculture and Forestry, and the William V.S. Tubman University as well as the Rubber Science and Technology Institute in Harper, Maryland County. It is important that these R&D institutions have full capacity to fill the gap as a means of technology transfer.

When this is done, it will help the country in moving up the value-chain of rubber processing production.

4. **Foreign Direct Investment (FDI):** a policy that enhances interest in FDI is required for providing the rubber industry with access to the technologies and skills that already exist in other countries.
5. **Organizing smallholder farm cooperatives:** this is done through the provision of capacity-building in the form of training, market intelligence, and technology transfer. Cooperatives should have centralized preservation and treatment facilities.
6. **Create motivation:** the Liberian government needs to provide performance-based rewards for rubber manufacturing industries as a means of creating a competitive environment among the domestic industries vying for exports. Government should also be involved in monitoring for standardization purposes.
7. **Increase local demand:** as an emerging sector in the post-war Liberian economy, policymakers must seize the moment and develop policy frameworks and strategies for promoting and regulating investment in this area through local content policy implementation. This will Increase the demand for and domestic consumption of rubber products.

5.3 Conclusion

The focus of this thesis is on resource-based industrialization in Liberia, with concentration on the rubber industry. Despite Liberia having the world's largest contiguous rubber plantation, the country has not developed an industry to manufacture a single rubber band. A comparative case study was made with Malaysia to know why it has succeeded, while Liberia has failed to develop her rubber industry.

In the case of Malaysia, foreign companies were attracted to invest in the economy due to the role of government in transforming corporate ownership partners and nurturing industrial enterprise within the complex value chain. The government privatization scheme, coupled with political stability, was a powerful tool that attracted new to offers of long-term investment. The Malaysian regime has long been characterized by policymaking and efficient implementation, and the ability to learn domestically and from the experience of others. This was enhanced by a reform cluster approach that was effective in addressing coordination problems.

In Liberia, the establishment of a rubber manufacturing plant would bring the beginnings of mechanisms to breach the gap of growth without development. It is therefore vital for the Liberian government and its policymakers to collaborate through public/private partnerships with multinational rubber companies to develop an industrial policy framework that explores the economic potential of rubber manufacturing. This shift to a new model in Liberia's rubber industry requires innovative and creative leadership as low- value exports cannot be relied on to transform it. The rubber industry could be integrated vertically with local production of natural rubber as raw materials. Manufacturing of high-value rubber products such as vehicle tyres, gloves, condoms etc., would be a sustainable approach that has the potential of making the rubber industry lucrative, because high-value products can be exported to global markets. This would create an atmosphere for the development of an export-led economy to generate more revenue for the country. These value chain reactions would lead to further growth in the country's industrial base, thereby creating employment and poverty reduction. A big push to aid-finance to subsidize multinational companies through an industrial policy instrument would be the appropriate tool to make Liberia tap into her comparative advantage in the development of a rubber manufacturing industrial sector in West Africa.

Bibliography

Abdullah, M.R.B. & Abdul Jalil, S. (2006) Industrial structure and concentration in Malaysian manufacturing industry. *International Journal of Management Studies* (IJMS), 13, pp. 83–101.

Adebusuyi, B. S. (2004) *Stabilisation of commodity market of interest to Africa.* In Workshop on Constraints to Growth in Sub-Saharan Africa, organized by the Intergovernmental Group of Twenty-Four, Pretoria, South Africa, pp. 1–28.

Ali, A. (1992) Technology Transfer in Manufacturing Industries via Foreign Direct Investment. *Foreign Direct Investment in Malaysia, Institute of Developing* Economies, Tokyo.

Amsden, A. H. (2001) *The Rise of 'The Rest': Challenges to the West from Late-Industrializing Economies*. Oxford: Oxford University Press.

Andaya, B.W. & Andaya, L. Y. (2016) *A history of Malaysia. Palgrave Macmillan*.

Asid, R. (2010) The technical efficiency analyses of the manufacturing sector in Malaysia: Evidence from the First Industrial Master Plan (1986-1995). *Asian Social Science*, 6(2), p.99.

Awang, H. (2004) Human Capital and Technology Development in Malaysia. *International Education Journal*, 5(2), pp. 239–246.

Bakar, B. B. (2009) *The Malaysian Agricultural Industry in the New Millennium – Issues and Challenges*. University of Malaya, (c), pp. 337–356.

Beth, S. (2009) 'Industrial rubber goods sector skills shortage continues. *Engineering News,* February 2009.

Board, M-T- I. (2006) Malaysian Oil Palm Statistics, 2006. Ministry of Plantation Industries and Commodities.

Bowie, A. (1991) *Crossing the Industrial Divide: state, society, and the politics of economic transformation in Malaysia*. Columbia University Press.

Byerlee, D., Masters, W.A. & Robinson, D. S. (2017) *From land grabs to land development*. Agriculture and Rural Development in a Globalizing World, *JART* Challenges and Opportunities, p.56.

Church, R. H. (1969) 'The Firestone rubber plantations in Liberia. *The Geographical Journal,* 54(4), pp.430-437.

Drabble, J. (2000) *An economic history of Malaysia, c. 1800-1990: The transition to modern economic growth*, pp. 8–9 Springer.

Dunn, E.D., Beyan, A.J. & Burrowes, C. . (2000) *Historical Dictionary of Liberia* (vol. 83). Scarecrow Press.

Eaton, J. & Kortum, S. (2001) Trade in capital goods. *European Economic Review*, 45(7), pp.1195-1235.

Edward, C., Bradley, C. & Gaynor, R. (2013) *Liberia constraints analysis.*

Foster, V. & Pushak, N. (2010) 'Liberia's Infrastructure: A Continental Perspective, (March, 2010). World Bank Group, Washington, DC.

Freeman, T. E. (2011) 'The Perspective: Liberia Challenges to Economic Growth, Sustainable Development'.

Gazis, R. & Chaverri, P. (2010) Diversity of fungal endophytes in leaves and stems of wild rubber trees (Hevea brasiliensis) in Peru. *Fungal Ecology*, 3(3), pp.240-254.

Greenaway, D & Milner, C. (1993) Import substitution industrialization policy: Trade and industrial policy in developing countries: *A Manual of Policy Analysis*. *University* of Michigan Press.

Grubler, A. (1995) Industrialization as a historical phenomenon.

Haque, M. S. (2003) The role of the state in managing ethnic tensions in Malaysia: A critical discourse. *American Behavioral Scientist*, 47(3), pp. 240–266.

Harrison, Helena. Birks, Melanie, Richard Franklin and Jane Mills (2017) Qualitative Social Research, 18(1).

Islam, I. & Chowdhury, A. (1997) Agriculture development strategy: a survey. *Journal of Asia-Pacific Economies*. Psychology Press.

Jackson, Samuel, P. (2015) Liberia: Challenges to Economc growth. *Journal of Sustainable Development.*

Jajri, I. & Ismail, R. (2010) *Impact of labour quality on labour productivity* and economic growth, pp. 486–495.

Johnson, T. (2010) *A critical examination of Firestone's operations in Liberia: A case study approach.* AuthorHouse.

Jomo, K.S. (1990) *Growth and Structural Change in the Malaysian Economy*, pp. 118-142. London: Palgrave Macmillan.

Jomo, K. S. (2007) *Industrialization and industrial policy in Malaysia*. Malaysian

Industrial Policy, pp. 1-34, Singapore, NUS Pres

Kowo, M. V. (2012) *Corporate Governance Practices in state-owned enterprises in Liberia.*

Kuruvilla, S. (1995) *Economic Development Strategy, Government Labour Policy and Firm-Level Industrial Relations Practices in Malaysia Economic Development Strategy*. Government Labour Policy.

Lesley, Fisher, Richard, Allen, Boakye Daniel, & Preez, Willie (2016) *Public Investment Management Assessment* in Liberia.

Manivong, V. & Cramb, R. A. (2008) Government Financial Support to the Rubber Industry: Economics of smallholder rubber expansion in Northern Laos. *Agroforestry Systems*, pp. 74(2), 113. Springer.

Mehmet, O. (2013) Development in Malaysia: *Poverty, Wealth and Trusteeship*. Routledge Revivals.

Milne, R. S. (1967) *Government and politics in Malaysia*. Boston: Houghton Mifflin Company.

Ministry of Commerce & Industry, Liberia (2019). Liberia national trade policy 2014-2019.

Ministry of Commerce, Liberia Industrial Policy (2011) National Industrial Policy of Liberia.

Mohamed, Zamri, Zarina Abd Kadir, & N. A. A. R. (2018) Malaysia Industry Masterplans and the Focus on the Nation's Technology and Innovation Development. *Journal of Science, Technology and Innovation* Policy.

Moore, A. (2017) *Agricultural Extension in Post-Conflict Liberia*: *Progress Made and Lessons Learned*, pp. 1–22. University of Illinois.

Morris, M. (2015) *One thing leads to another – commodities , linkages and industrial development : a conceptual overview.* University of Cape Town.

Oeking, A, Oshima, A, & Rodgers, C. (2016) *IMF Export Diversification, Liberia*, (16), pp. 33. IMF African Dept.

Ojo, E.O. & Agbude, G. A. (2012) An Exploration of the Historical and the Political Backgrounds of Liberia. *International Journal of Arts and Humanities*, 1(3), pp.187-200.

Pack, H. & Saggi, K. (2006) *The case for industrial policy: a critical survey*. The

World Bank.

Pangestu, M. (2002) *Industrial policy and developing countries. Development, trade and the WTO: A handbook.*

Papageorgiou, C. & Spatafora, M. N. (2012) *Economic diversification in LICs: Stylized facts and macroeconomic implications* (No. 12-13). International Monetary Fund.

Pieper, U. (2000) Deindustrialisation and the social and economic sustainability nexus in developing countries: Cross-country evidence on productivity and employment. *Journal of Development Studies*, 36(4), pp.66-99.

Radelet, B. S. (2007) *Reviving Economic Growth in Liberia*. Working Paper Number 13, November 2007. Center for Global Development, *Washington DC*.

Ragayah, M.Z. (2017) *Malaysian Development Experience:* Lessons for Developing Countries, *Institutions and Economies*, 6(1), pp. 17–56.

Rasuah R. (1995) Manufacturing in Colonial Malaya. In *Foreign Capital and Industrialization in Malaysia,* pp. 45-73. London: Palgrave Macmillan.

Rodrik, D., Subramanian, A. & Trebbi, F. (2004) Institutions rule: the primacy of institutions over geography, and integration in economic development, *Journal of Economic Growth,* 9(2), *pp.131-165.*

Rustomjee, Z. & Fesehaie J. (2018) Resource-based industrialisation in Southern Africa: Domestic policies, corporate strategies and regional dynamics. *Development Southern Africa*, Vol. 35 issue 3, pp.404-418.

Saham, J. (1980) British industrial investment in Malaysia, Kuala Lumpur. New York: Oxford University Press.

Smillie, I. & Brownell, A. (2007) *Land Grabbing and Land Reform: Diamonds, Rubber and Forests in the New Liberia*. Africa Portal.

Su, D. & Yao, Y. (2017) Manufacturing as the key engine of economic growth for middle-income economies. *Journal of the Asia Pacific Economy,* 22(1), pp.47-70.

Terneusen, E. (2017) *The Agriculture Sector in Liberia*. Liberia Netherlands Business and Culture Council 1.

Workman, D. (2017) Natural rubber exports by country. 2019 Statistics report.

Thirlwall, A. P. (1983) A plain man's guide to Kaldor's growth laws. *Journal of Post*

Keynesian Economics, 5(3), pp.345-358.

Thirlwall, A. P. (2014) Kaldor's 1970 Regional Growth Model Revisited. *Scottish Journal of Political Economy,* 61(4), pp. 341–347.

Thornhill, S. (2006) Knowledge, innovation and firm performance in high- and low-technology regimes. *Journal of Business Venturin*g, 21(15), pp.687-703.

Tyson, J. E. (2017) Private sector development in Liberia: *Financing for economic transformation in a fragile context iii*. Research paper, October 2017. Overseas Development Institute.

Umar, H Y., Giroh, D Y., Agbonkpolor, N. B. & Mesike, C. S. (2011). An Overview of World Natural Rubber Production and Consumption : An Implication for Economic Empowerment and Poverty Alleviation in Nigeria. *Journal of Human Ecology*, 33(1), pp. 53–59.

Verheye, W. (2010) Land Use, Land Cover and Soil Sciences. *Encyclopedi*a *of Life Support Systems*, UNESCO-EOLSS Publishers,Oxford, UK. Available at: http://www.eolss.net.

Vérité Assessment, (2015) *An exploratory assessment of Rubber production in Liberia.*

Yusof, Z. A. & Bhattasali, D. (2008) Economic growth and development in Malaysia: policymaking and leadership. Available at: http://siteresources.worldbank.org/EXTPREMNET/Resources/489960-1338997241035/Growth_Commission_Working_Paper_27_Economic_Growth_Development_Malaysia_Policy_Making_Leadership.pdf.

Yusoff, M.B., Hasan, F.A. & Jalil, S. A. (2000) *Globalisation, economic policy and equity: the case of Malaysia. Poverty and Income Inequality in Developing Countries*: *A Policy Dialogue on the Effects of Globalisation*. OECD Development Center.

Zinnah, D. M. M. (2016) *Economic Diversification and Inclusive Growth through Agriculture, Agro-processing and Manufacturing*. Researchgate